SHARP Service Manual

APSS
Auto Program Search System

Cassette Tape Recorder
with Built-in Radio

MODELS

GF-2800H
GF-2800E

In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified be used.

SPECIFICATIONS

GENERAL

Type:	Portable monophonic cassette tape recorder with LW/MW/FM radio
Power source:	a.c. 110/220V, 50/60Hz (GF-2800H) a.c. 240V, 50/60Hz (GF-2800E) d.c. 9V (Six UM/SUM-1 or HP2 batteries)
Speaker:	10cm
Semiconductors:	2-IC (Integrated circuit) 17-Transistor 15-Diode 1-LED
Output power:	MPO 2500mW (AC operation) (GF-2800H) MPO 2800mW (AC operation) (GF-2800E) RMS power 2000mW (10% distortion, DC operation)
Dimensions:	Width: 318mm Height: 210mm Depth: 91mm
Weight:	2.9kg (Without batteries)

TAPE RECORDER SECTION

Tape:	Philips type compact cassette tape
Tape speed:	4.8cm/sec.
Frequency response:	50 ~ 10,000Hz
Wow & flutter:	0.35% (DIN 45 511)
S/N ratio:	40dB
Fast forward time:	Approx. 120 second (C-60 tape)
Rewind time:	Approx. 120 second (C-60 tape)
Recording system:	AC bias
Erasing system:	DC erase
Input terminals:	External microphone jack Record/playback socket (DIN) AC socket External DC power jack
Output terminals:	External speaker jack (4 ohms impedance) Record/playback socket (DIN)
Other terminal:	Remote control jack

RADIO SECTION

Frequency range:	LW 150 ~ 285kHz MW 520 ~ 1620kHz FM 87.6 ~ 108MHz
Intermediate frequency:	LW/MW 455kHz FM 10.7MHz

SHARP CORPORATION OSAKA, JAPAN

PARTS IDENTIFICATION (Refer to Figure 1 and Figure 2)

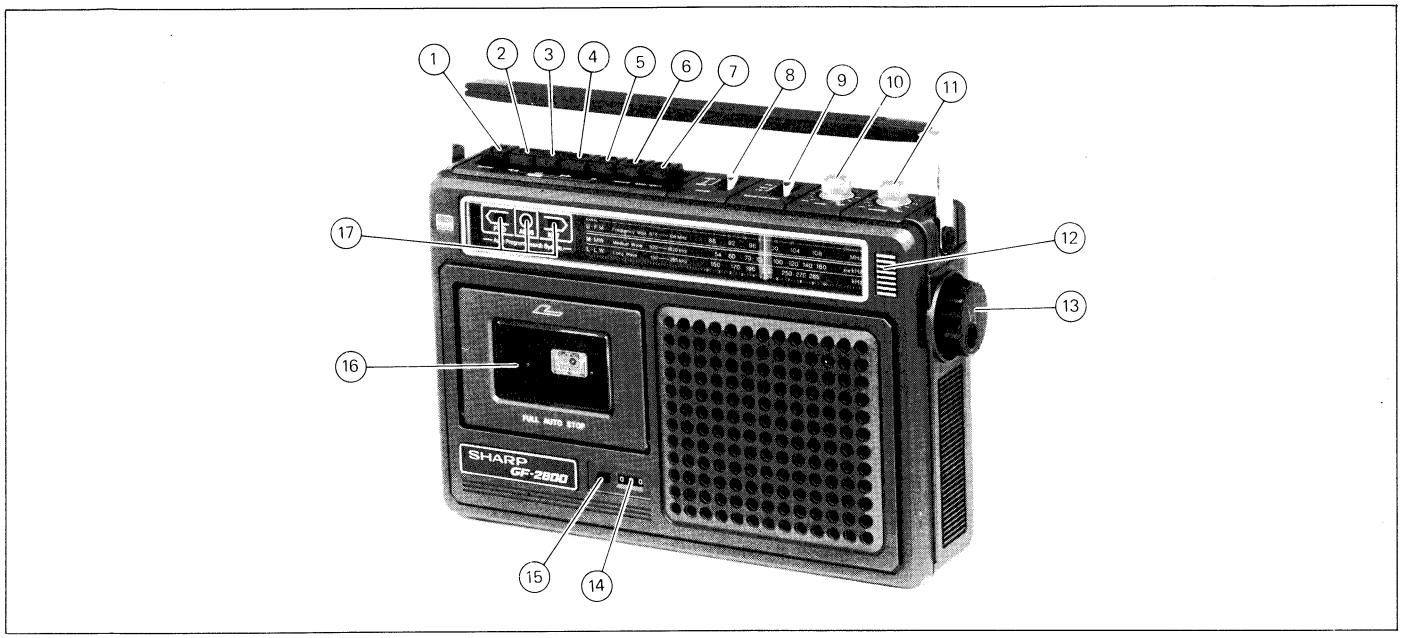


Figure 1

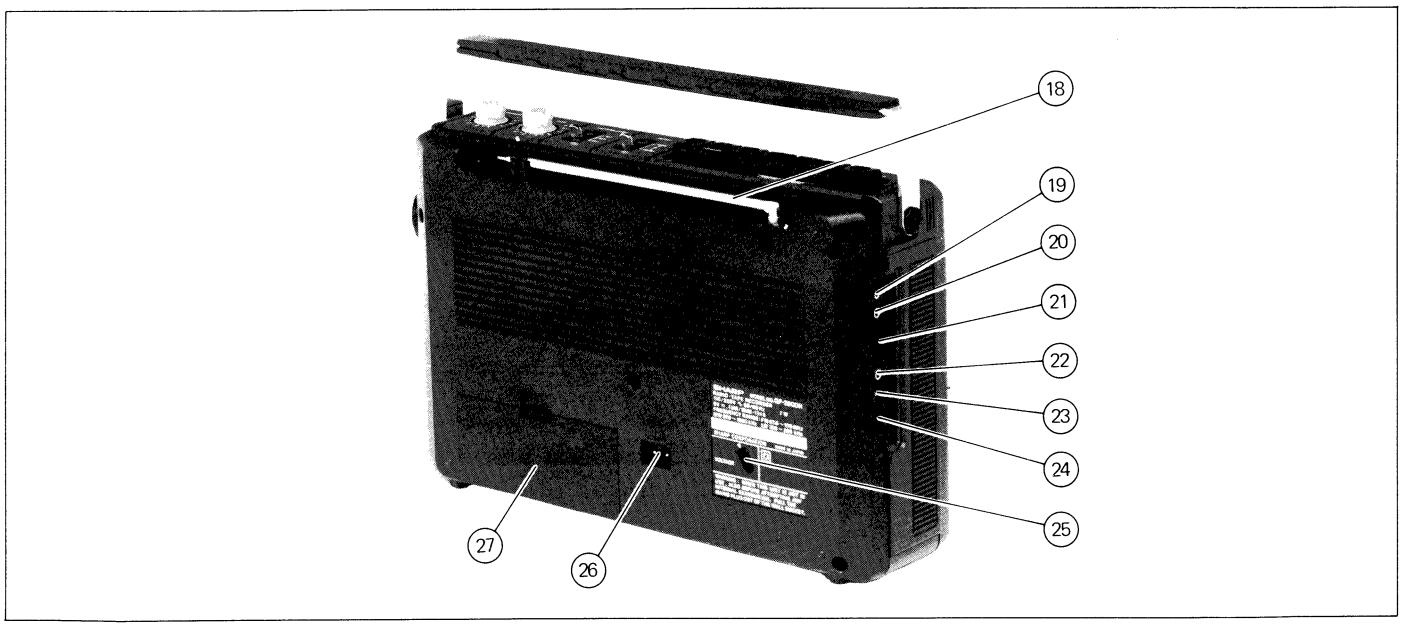


Figure 2

1. Pause key
2. Fast forward/Cue/Forward APSS key
3. APSS cut key
4. Rewind/Review/Reverse APSS key
5. Play key
6. Record key
7. Stop/eject key
8. Mode selector switch
9. Band selector
10. Tone control
11. Volume control
12. Built-in microphone
13. Tuning control
14. Digital tape counter
15. Counter reset button
16. Cassette holder
17. APSS indicator
18. Telescopic rod antenna (aerial)
19. Remote control jack
20. External microphone jack
21. Record/playback socket (DIN)
22. External speaker jack
23. External DC power jack
24. Beat canceller switch
25. Voltage selector (GF-2800H only)
26. Mains socket
27. Battery compartment

DISASSEMBLY (Refer to Figures 3 to 5.)

FRONT CABINET REMOVAL (Refer to Figure 3.)

1. Take out the cassette from the cassette holder.
2. Take out six (6) batteries from the battery compartment located at the rear of the unit.
3. Pull out tone, volume and tuning control knobs.
4. Remove five (5) screws retaining the front cabinet and remove the front cabinet.
5. Remove lead wires of the speaker from the printed wiring board.

MECHANISM BLOCK REMOVAL (Refer to Figure 4.)

1. Remove the screw retaining the dial scale.
2. Remove the dial scale and take out the APSS indicator P.W. Board from the rear of the dial scale.
3. Remove two connectors from the printed wiring board.
4. Remove three (3) screws retaining the mechanism block. Then the mechanism block can be removed.

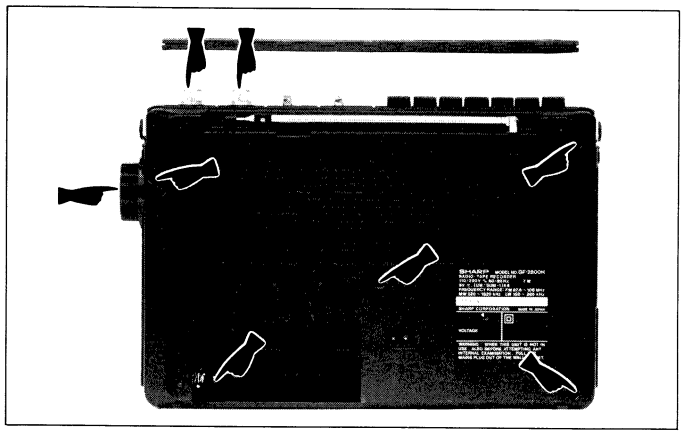


Figure 3

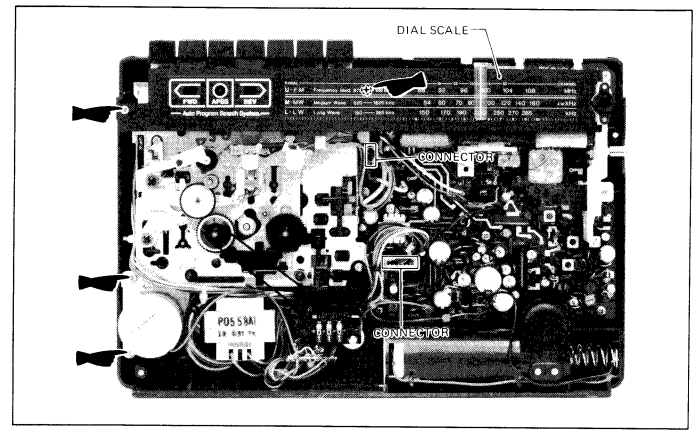


Figure 4

AUDIO/TUNER PRINTED WIRING BOARD REMOVAL (Refer to Figure 5.)

1. Pull out the connector tips from the power transformer, mains socket, rod antenna and battery terminal.
2. Remove seven (7) screws retaining the printed wiring board. Then the printed wiring board can be removed.
3. If necessary, unsolder the lead wires connected to the printed wiring board.

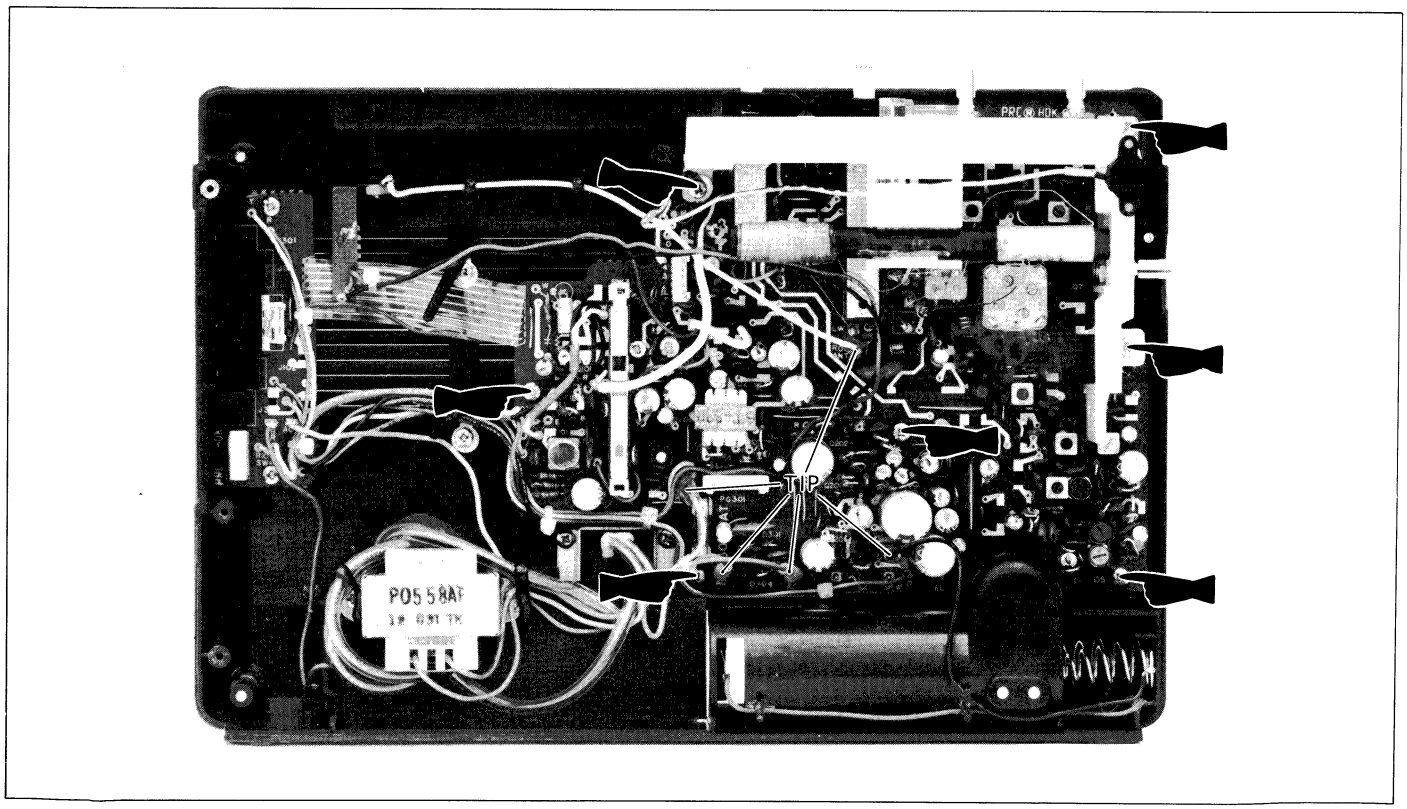


Figure 5

MECHANICAL ADJUSTMENT

RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT

(Refer to Figure 6.)

1. Connect a resistor (4 ohms, 2W) to the external speaker jack (earth side and signal side) and connect V.T.V.M. thereto.
2. Load the unit with a test tape (TEAC make, MTT-113C 8kHz, - 10dB full-track recorded) and play it.
3. At the time, adjust the head azimuth adjusting screw so that V.T.V.M. will read the maximum.

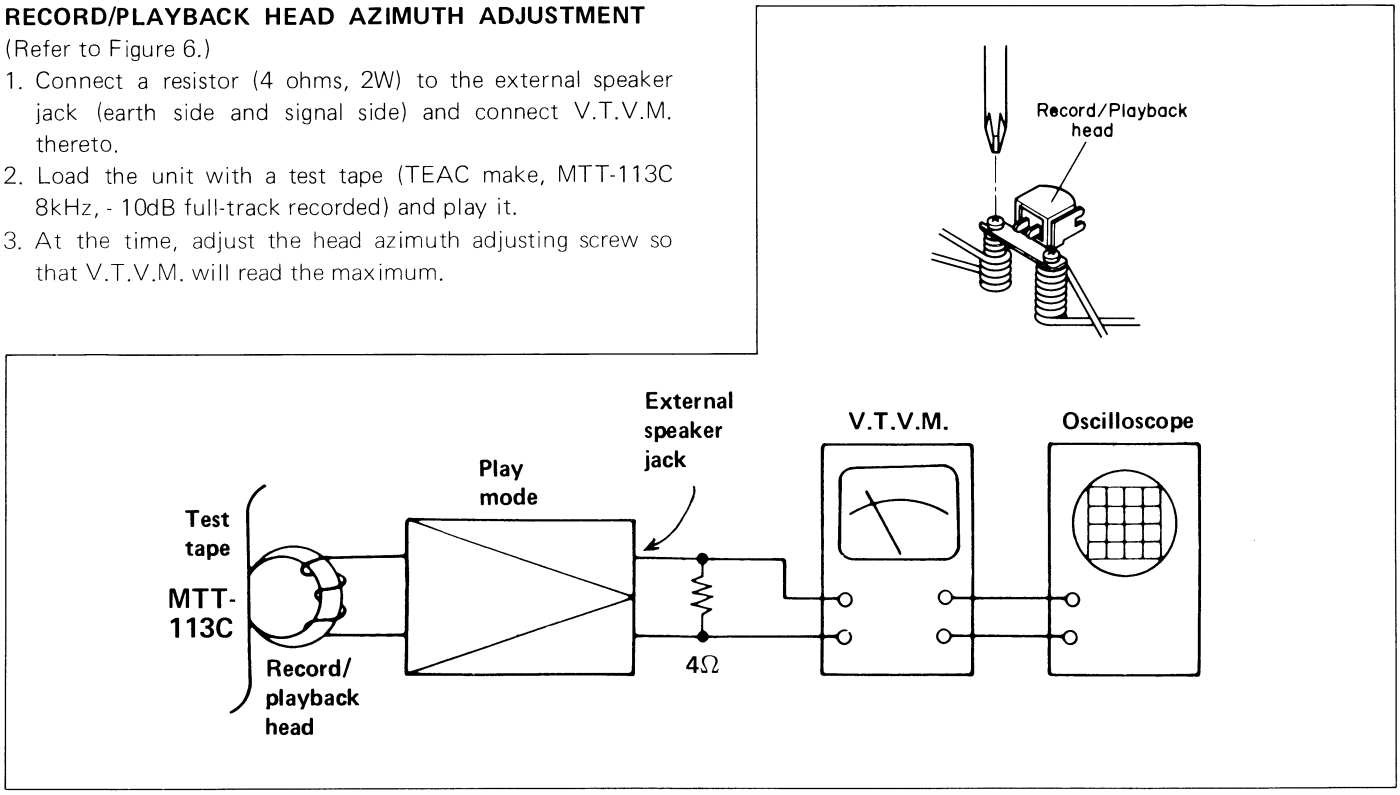


Figure 6

TORQUE CHECK AT PLAY, FAST FORWARD AND REWIND MODES (Refer to Figure 7.)

1. Set a torque measuring reel to the turntable (to the take-up side at play or fast forward mode and to the supply side at rewind mode).
2. Then, gradually weaken a force of the tension gauge and read the torque value when the rotation speed of the turntable becomes nearly constant.
3. The torque values in each mode are as specified below.

Mode	Torque value
Play	35 ~60 gram. cm
Fast forward	70 ~100 gram. cm
Rewind	70 ~ 100 gram. cm

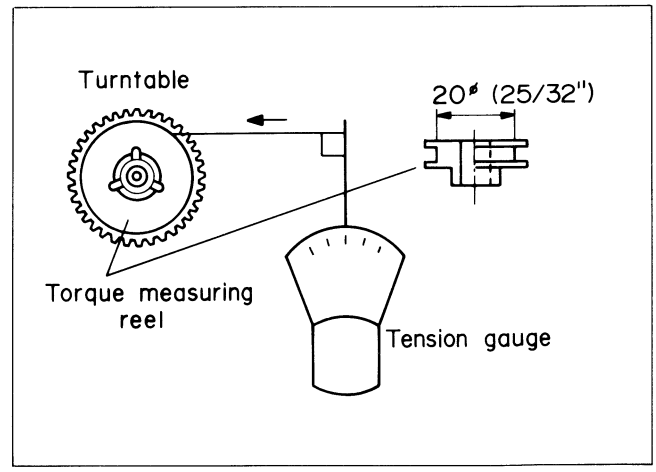


Figure 7

FLYWHEEL SHAFT (CAPSTAN) THRUST CLEARANCE ADJUSTMENT (Refer to Figure 8.)

1. Slowly turn the screw for adjusting the flywheel shaft thrust clearance clockwise until there will be no thrust clearance.
2. Then, turn the screw for adjusting the flywheel shaft thrust clearance by 1/8 to 3/8 turn counter-clockwise. (Since screw's pitch is 0.8mm, thrust clearance of about 0.1mm to 0.3mm is then produced.)

TAKE-UP PULLEY POSITIONAL ADJUSTMENT

(Refer to Figure 8.)

Adjust clearance between the take-up pulley and flywheel bearing so as to obtain 0.5mm.

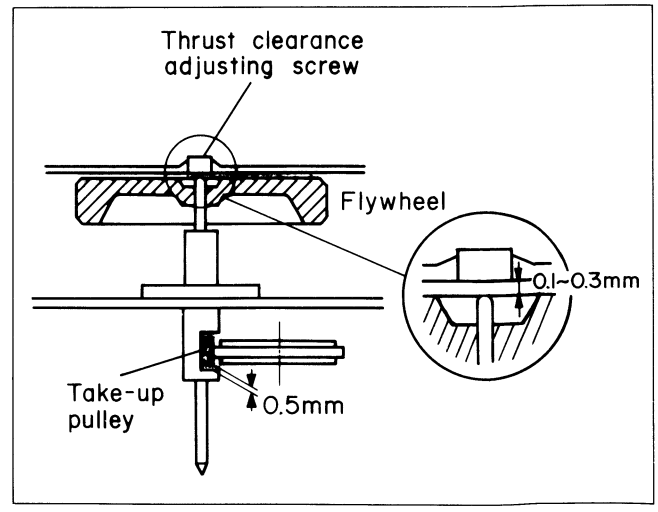


Figure 8

PRESSURE ROLLER PRESSURE ADJUSTMENT

(Refer to Figure 9.)

1. Place this unit in playback mode.
2. Use a tension gauge (500 grams) to press it to the specified position of the pressure roller to make the pressure roller apart from the capstan (at the time, the pressure roller stops to rotate). Then, gradually weaken a force of the tension gauge and read the value when the pressure roller begins to rotate. Make sure that the reading of tension gauge is 300 to 350 grams.
3. If the value is not satisfied, adjust it by bending the pressure roller pressing spring or replace the spring with a new one.

Notes:

In playback mode, make sure there is a gap of more than 0.1mm between the pressure roller lever and the sub-chassis.

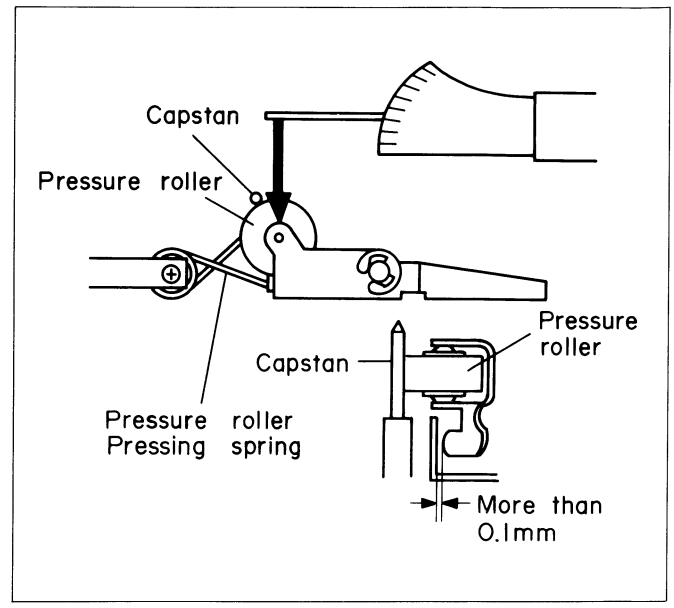


Figure 9

PAUSE TIMING ADJUSTMENT (Refer to Figure 10.)

1. Place this unit in playback mode. Then, check the gap between the pin on the pause lever and pause lock lever. The gap should be more than 0.2mm.
2. Next, push the pause key slowly and check that the pressure roller and take-up idler are simultaneously apart from the capstan and take-up turntable.
3. If it is not satisfied in step 2, adjust it by bending the Ⓐ part of the pause lever.

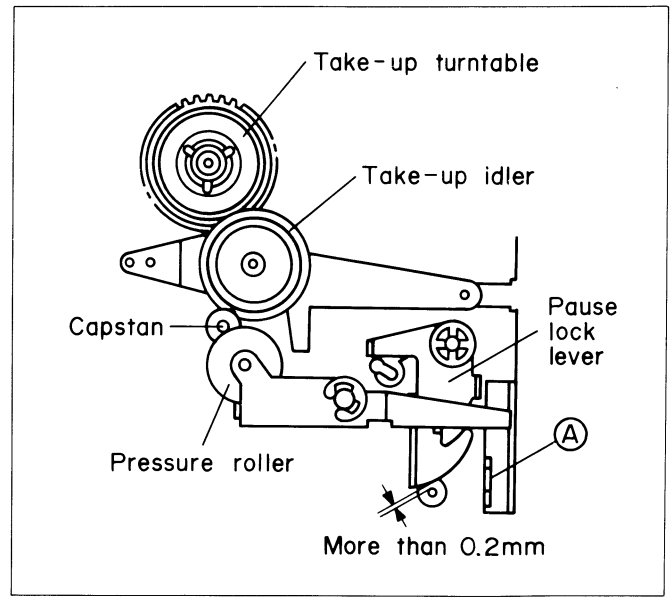


Figure 10

PLUNGER SOLENOID POSITIONAL ADJUSTMENT

(Refer to Figure 11.)

1. Loosen the screws retaining the plunger solenoid.
2. While depressing the core into the plunger solenoid, push the rewind key. In this time, adjust the plunger solenoid position so that the pin on the rewind lever touches the Ⓐ part of the APSS lock lever.
3. After adjustment, retighten the screws.

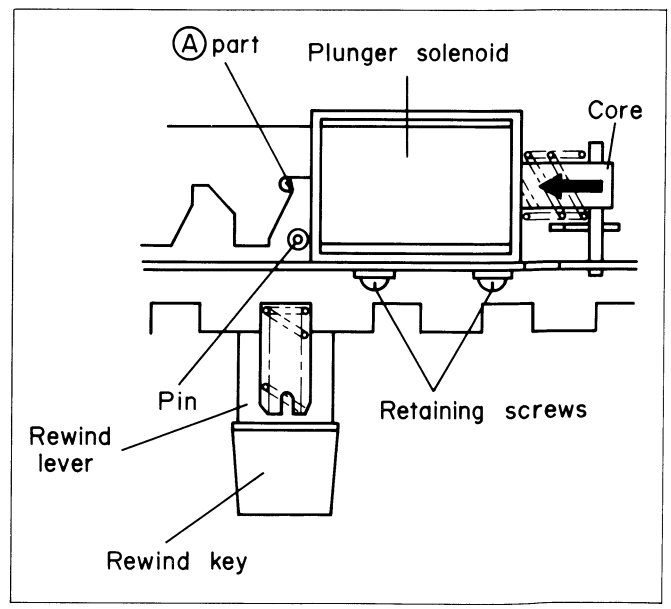


Figure 11

RECORD/PLAYBACK AMPLIFIER CIRCUIT ADJUSTMENT AND CHECK

ADJUSTMENT OF BIAS CURRENT AND BIAS OSCILLATION FREQUENCY OF RECORD AMPLIFIER

(Refer to Figure 12.)

1. Connect V.T.V.M. to the resistor (R141) located on the printed wiring board.
2. Set the mode switch (SW2) to "tape".
3. Set the beat canceller switch (SW4) to "A" position.
4. Connect an oscilloscope (vertical input terminal) to the output terminal of V.T.V.M. and then the output of an audio generator to the oscilloscope(horizontal input terminal).
5. Place the unit in record mode. At the time, while observing Lissajou's figure on the oscilloscope, check the bias oscillation frequency is 54kHz ±4kHz.
6. After checking the oscillation frequency, make resistors on the printed wiring board be shorted or opened so that V.T.V.M. will read 50 to 60mV. (R144, R145, R146)

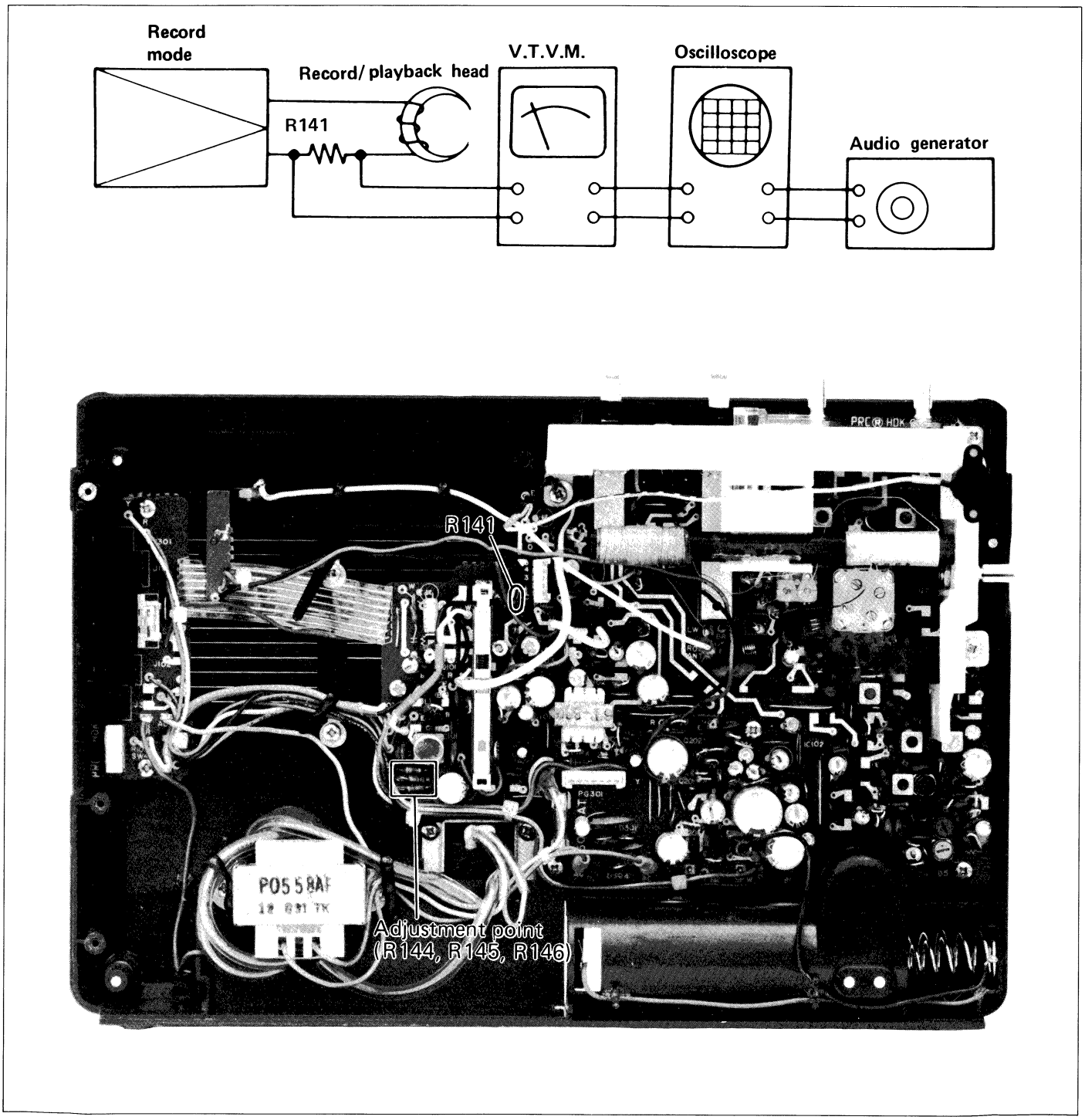


Figure 12

RECORD AMPLIFIER ERASE CURRENT CHECK
(Refer to Figure 13.)

1. Remove the earth lead from the erase head and instead connect a DC ammeter between the earth terminal of erase head and the lead.
2. Place the unit in record mode. Make sure the ammeter then indicates 10 to 12mA.

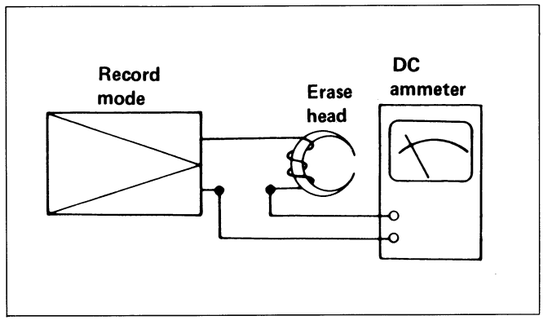


Figure 13

PLAYBACK SENSITIVITY CHECK (Refer to Figure 14.)

1. Connect a resistor (4 ohms, 2W, 5%) to the external speaker jack (earth side and signal side) and connect V.T.V.M. thereto.
2. Set the tone control knob to "high" and the volume control knob to "max".
3. Place the mode switch to "tape".
4. Load the unit with a test tape (TEAC make, MTT-112SP, 333Hz, –20dB recorded) and play it.
5. The playback sensitivity is normal if V.T.V.M. then reads 0.7V ±3dB.

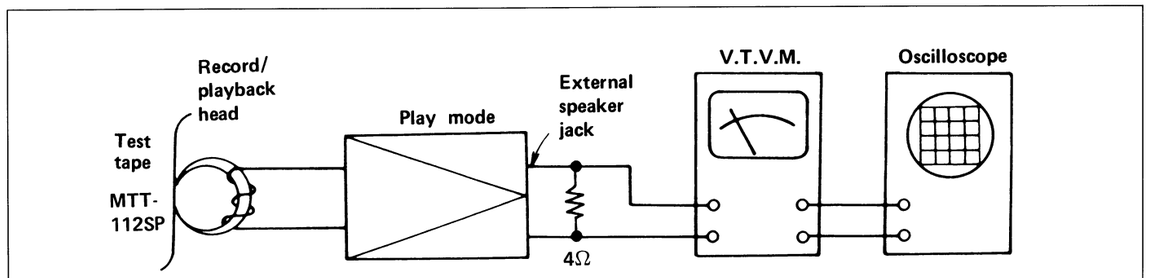


Figure 14

RECORD SENSITIVITY CHECK (Refer to Figure 15.)

1. Set the tone control knob to "high" and the volume control knob to "max" and make the secondary of bias oscillation coil (L101) be shorted by means of electrolytic capacitor (100MFD/10V).
2. Connect V.T.V.M. to the resistor (R141) located on the printed wiring board.
3. Place the mode switch to "tape".
4. Connect an audio generator to the external microphone jack and produce signal (1000Hz, –60dB).
5. Place the unit in record mode. The record sensitivity is normal if V.T.V.M. then reads about 2.2mV.

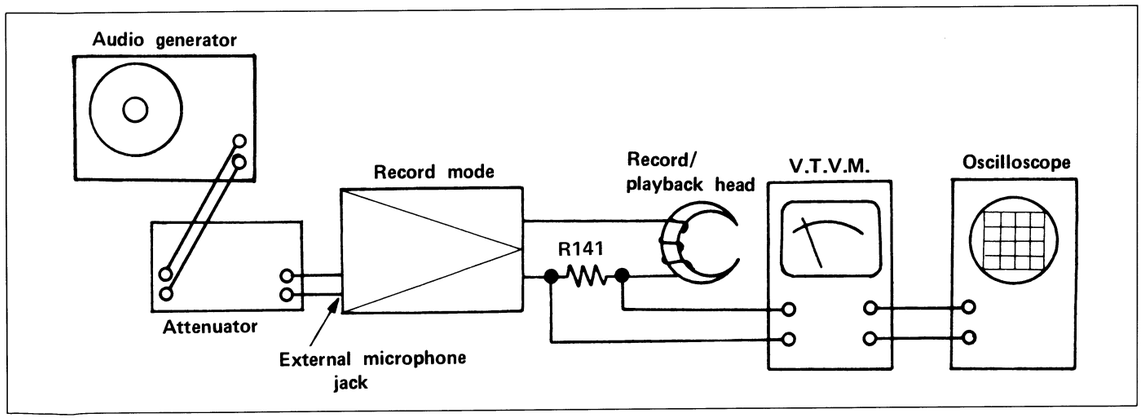


Figure 15

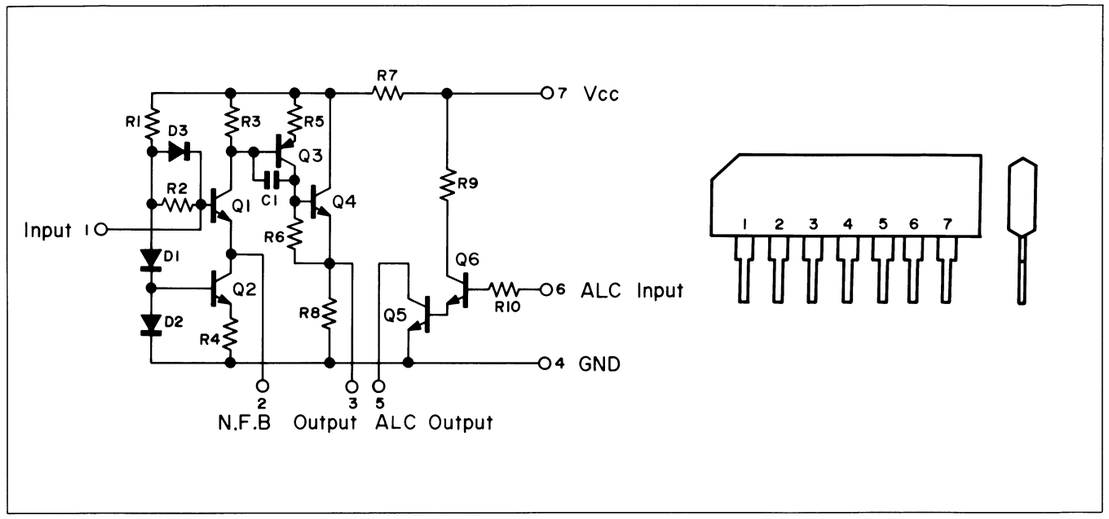


Figure 16 EQUIVALENT CIRCUIT OF IC101

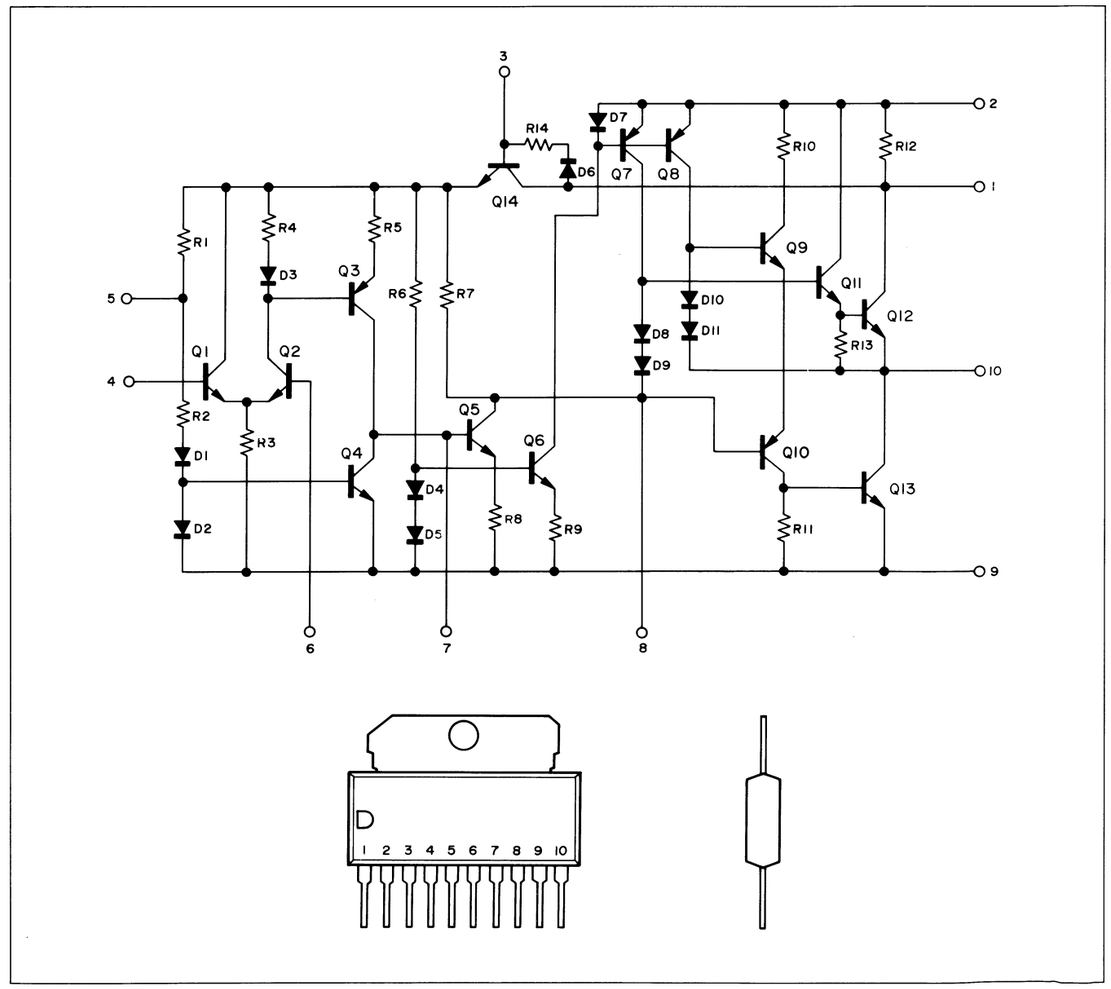


Figure 17 EQUIVALENT CIRCUIT OF IC102

RADIO CIRCUIT ADJUSTMENT

ALIGNMENT POINTS

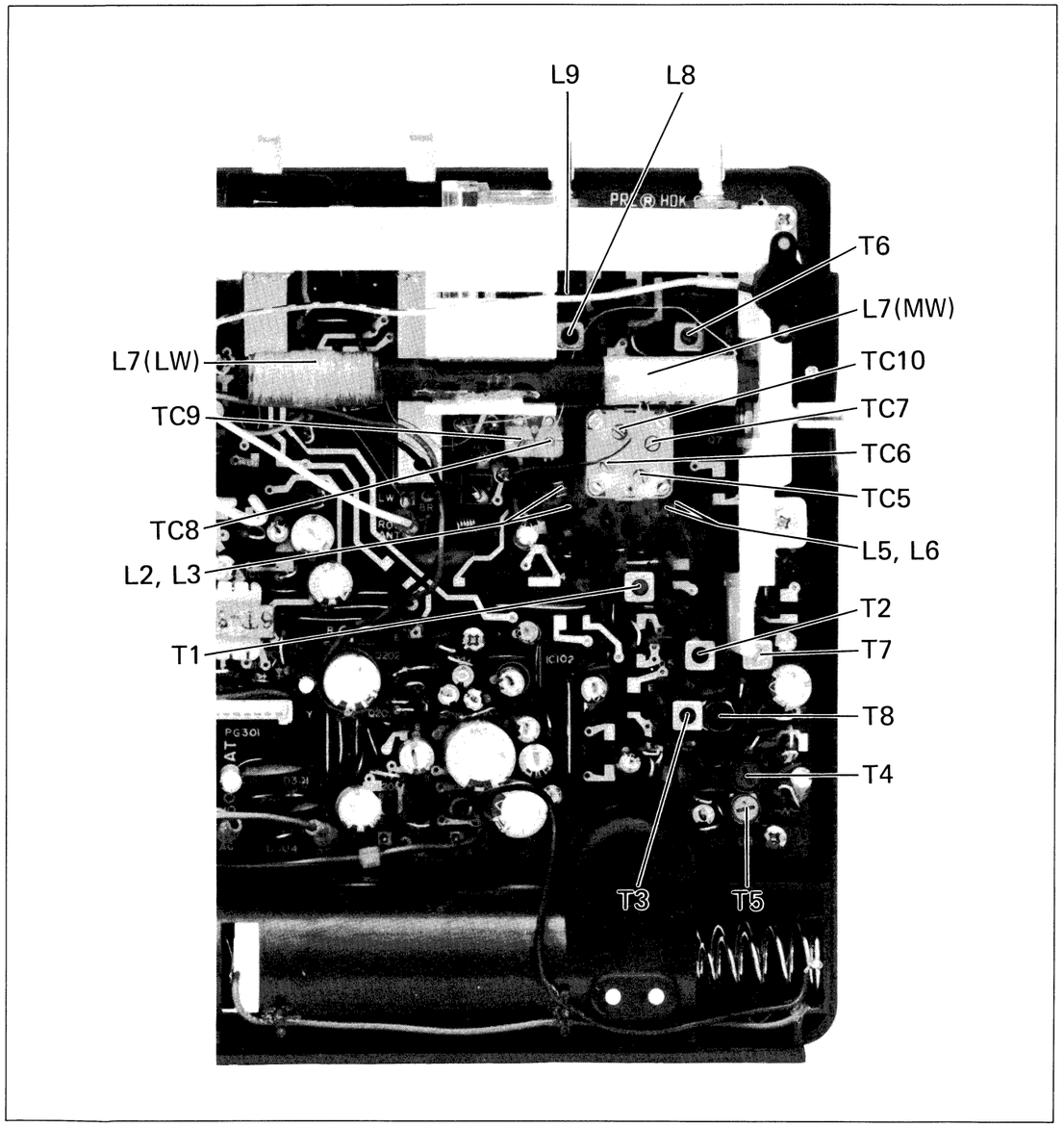


Figure 18

THE INSTRUCTION OF FREQUENCY ADJUSTMENT

In order to comply with Pfg. Nr. 358/1970, please fix the low end of dial frequency (87.5MHz) and the high end of dial frequency (107.9MHz) on FM band, by adjusting oscillation coil (L5, L6) and oscillation trimmer (TC5), respectively as illustrated in Figure 18.

AM IF/MW RF ALIGNMENT CHART (Refer to Figures 19 and 20.)

1) Set the band selector switch (SW1) to "MW".
2) Set the mode selector switch (SW2) to "radio".
3) Set the volume control (R158) to "min".

STEP	TEST STAGE	SIGNAL GENERATOR		DIAL SETTING	METER CONNECTION	WHERE TO ADJUST	ADJUSTMENT
		CONNECTION TO RECEIVER	INPUT SIGNAL FREQUENCY				
1	IF	Connect AM sweep generator to the loop antenna and place it near the bar antenna (L7). (The output of signal generator should be as small as possible.)	455kHz (400Hz, 30%, AM modulation)	Highest frequency (to extreme right)	Connect an oscilloscope between the test point (TP4) and earth through a capacitor (0.22 to 1MFD)	T6, T7, T8	Rotate the core to adjust so that the waveform becomes maximum and symmetrical in right and left as shown in Fig. 19. Repeat this until adjustment be satisfied.
2	Frequency coverage	Connect AM signal generator to the loop antenna and place it about 60cm apart from the bar antenna (L7). (The output of signal generator should be as small as possible.)	510kHz (400Hz, 30%, AM modulation)	Lowest frequency (to extreme left)	Connect V.T.V.M. to the external speaker jack. (Set the volume control (R158) to "max".)	Local oscillation coil L8	Adjust so as to make the output be maximum.
3		Same as step 2.	1650kHz, (400Hz, 30%, AM modulation)	Highest frequency (to extreme right)	Same as step 2.	Oscillation trimmer TC7	Same as step 2.
4	Tracking	Same as step 2.	600kHz, (400Hz, 30%, AM modulation)	600kHz	Same as step 2.	MW Antenna coil L7	Same as step 2.
5		Same as step 2.	1400kHz, (400Hz, 30%, AM modulation)	1400kHz	Same as step 2.	Antenna trimmer TC10	Same as step 2.
6	Repeat the steps 2 and 3 or 4 and 5 until no further improvement can be made.						

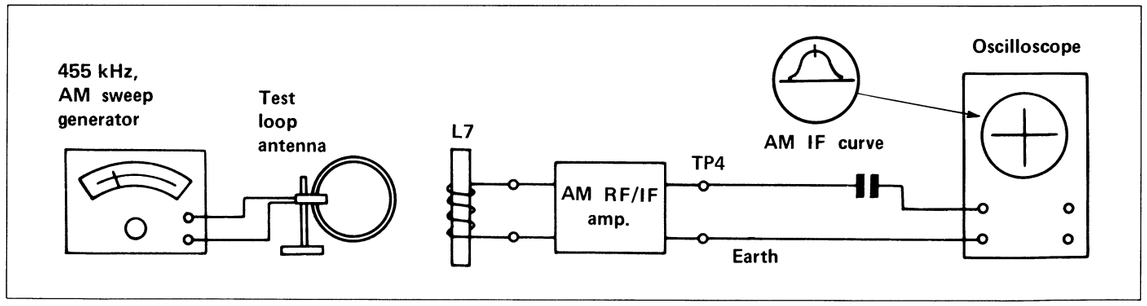


Figure 19

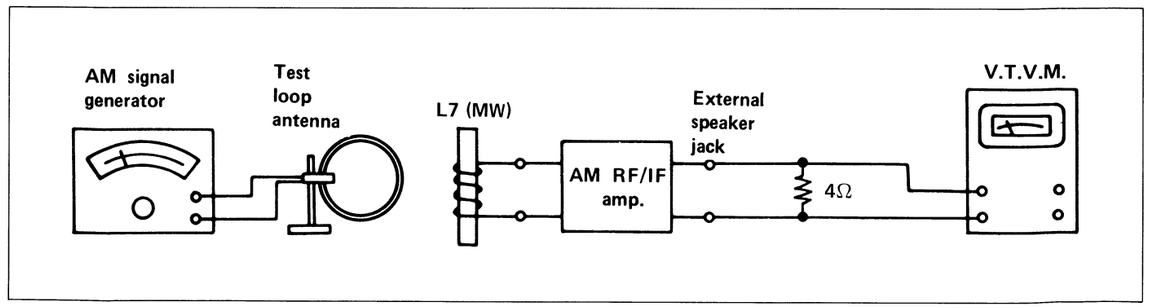


Figure 20

LW RF ALIGNMENT CHART (Refer to Figure 21.)

1) Set the band selector switch (SW1) to "LW".
2) Set the mode selector switch (SW2) to "radio".

STEP	TEST STAGE	SIGNAL GENERATOR		DIAL SETTING	METER CONNECTION	WHERE TO ADJUST	ADJUSTMENT
		CONNECTION TO RECEIVER	INPUT SIGNAL FREQUENCY				
1	Frequency coverage	Connect AM signal generator to the loop antenna and place it about 60cm apart from the bar antenna (L7). (The output of signal generator should be as small as possible.)	145kHz (400Hz, 30%, AM modulation)	Lowest frequency (to extreme left)	Connect V.T.V.M. to the external speaker jack. (Set the volume control (R158) to "max".)	Local oscillation coil L9	Adjust so as to make the output be maximum.
2		Same as step 1.	295kHz (400Hz, 30%, AM modulation)	Highest frequency (to extreme right)	Same as step 1.	Oscillation trimmer TC9	Same as step 1.
3	Tracking	Same as step 1.	160kHz (400Hz, 30%, AM modulation)	160kHz	Same as step 1.	LW Antenna coil L7	Same as step 1.
4		Same as step 1.	260kHz (400Hz, 30%, AM modulation)	260kHz	Same as step 1.	Antenna trimmer TC8	Same as step 1.
5	Repeat the steps 1 and 2 or 3 and 4 until no further improvement can be made.						

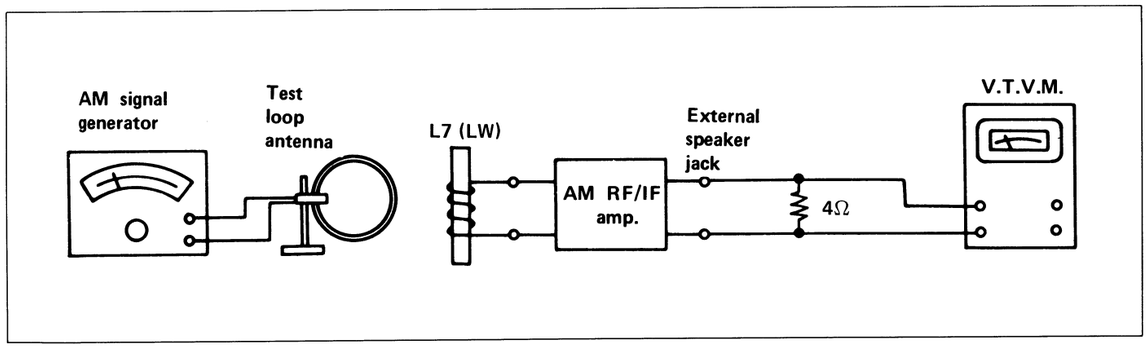


Figure 21

FM IF/RF ALIGNMENT CHART (Refer to Figures 22, 23 and 24.)

1) Set the band selector switch (SW1) to "FM".
2) Set the mode selector switch (SW2) to "radio".
3) Set the volume control (R158) to "min".

STEP	TEST STAGE	SIGNAL GENERATOR		DIAL SETTING	METER CONNECTION	WHERE TO ADJUST	ADJUSTMENT
		CONNECTION TO RECEIVER	INPUT SIGNAL FREQUENCY				
1	IF	Connect FM sweep generator to the TP2 through a capacitor (5pF). Connect its earth side to the earth terminal.	10.7MHz	Highest frequency (to extreme right.)	Connect an oscilloscope between the test point (TP4) and earth through a capacitor (0.022 to 0.1 MFD.)	T1, T2, T3	Rotate the core to adjust so that the waveform becomes symmetrical in right and left as shown in Fig. 22. (Rotate the core of T5 fully counter-clockwise.)
2	Detection	Same as step 1.	Same as step 1.	Same as step 1.	Same as step 1.	T4, T5	Adjust the core so that the waveform ("s" curve) becomes symmetrical in up and down with the best linearity as shown in Fig. 23.
3	Repeat the steps 1 and 2 until no further improvement can be made.						
4	Frequency coverage	Connect FM signal generator to the antenna terminal (TP1) (The output of signal generator should be as small as possible.)	87.1MHz (400Hz, 30%, FM modulation)	Lowest frequency (to extreme left)	Connect V.T.V.M. to the external speaker jack. (Set the volume control (R158) to "max".)	Local oscillation coil L5, L6	Make the output be maximum.
5		Same as step 4.	109MHz (400Hz, 30%, FM modulation)	Highest frequency (to extreme right)	Same as step 4.	Oscillation trimmer TC5	Same as step 4.
6	Tracking	Same as step 4.	88MHz (400Hz, 30%, FM modulation)	88MHz	Same as step 4.	RF coil L2, L3	Same as step 4.
7		Same as step 4.	108MHz (400Hz, 30%, FM modulation)	108MHz	Same as step 4.	RF trimmer TC6	Same as step 4.
8	Repeat the steps 4 and 5 or 6 and 7 until no further improvement can be made.						

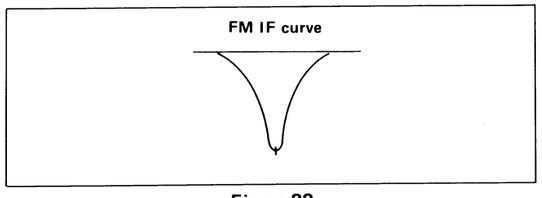


Figure 22

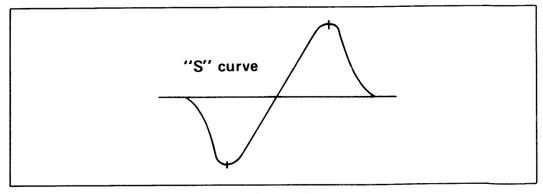


Figure 23

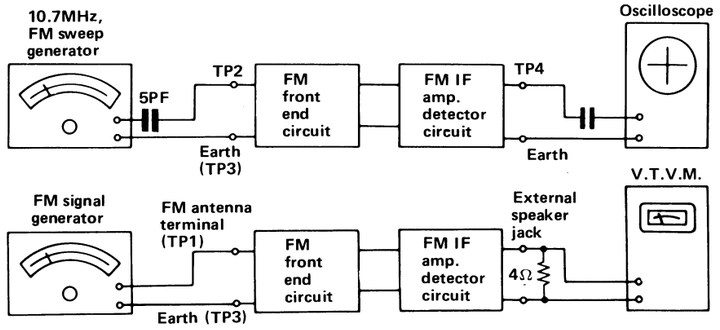


Figure 24

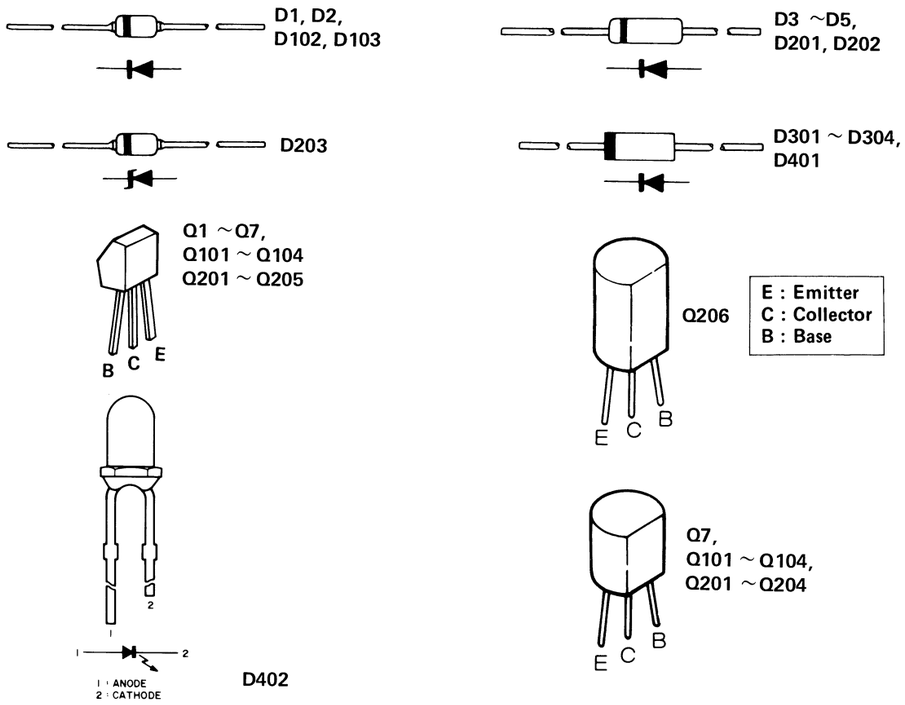


Figure 25 TERMINAL GUIDE OF TRANSISTORS AND DIODES

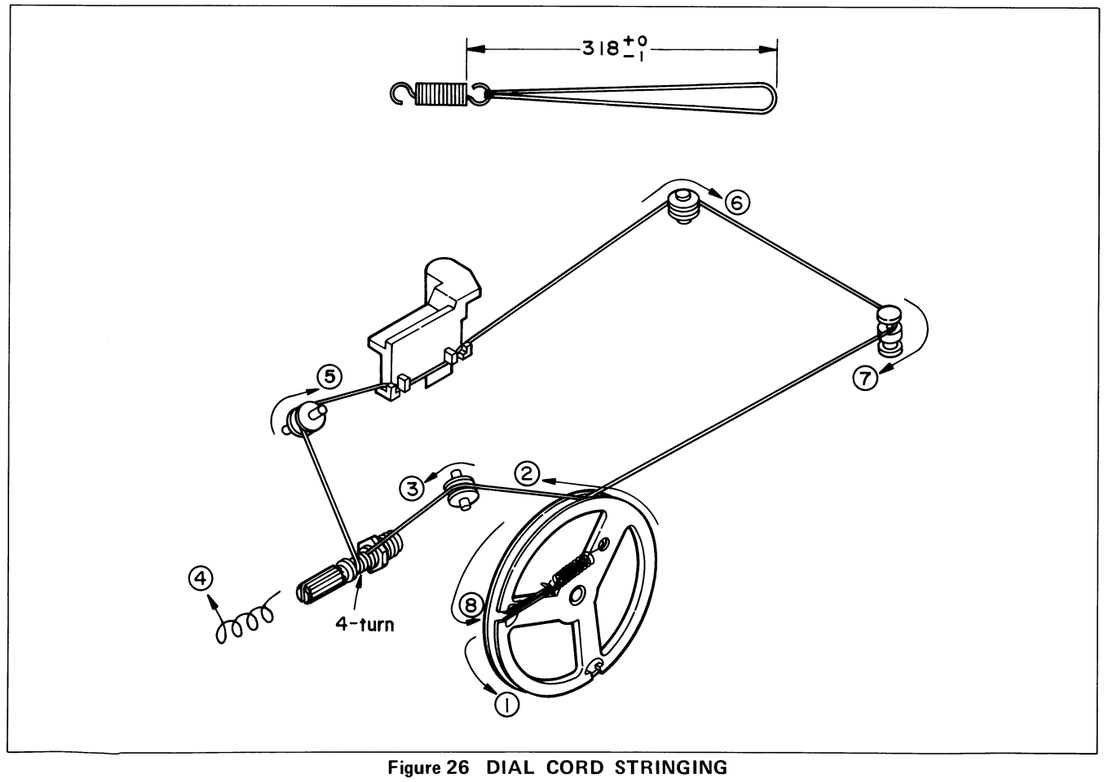


Figure 26 DIAL CORD STRINGING

ICs and transistors voltage shows in FM mode.

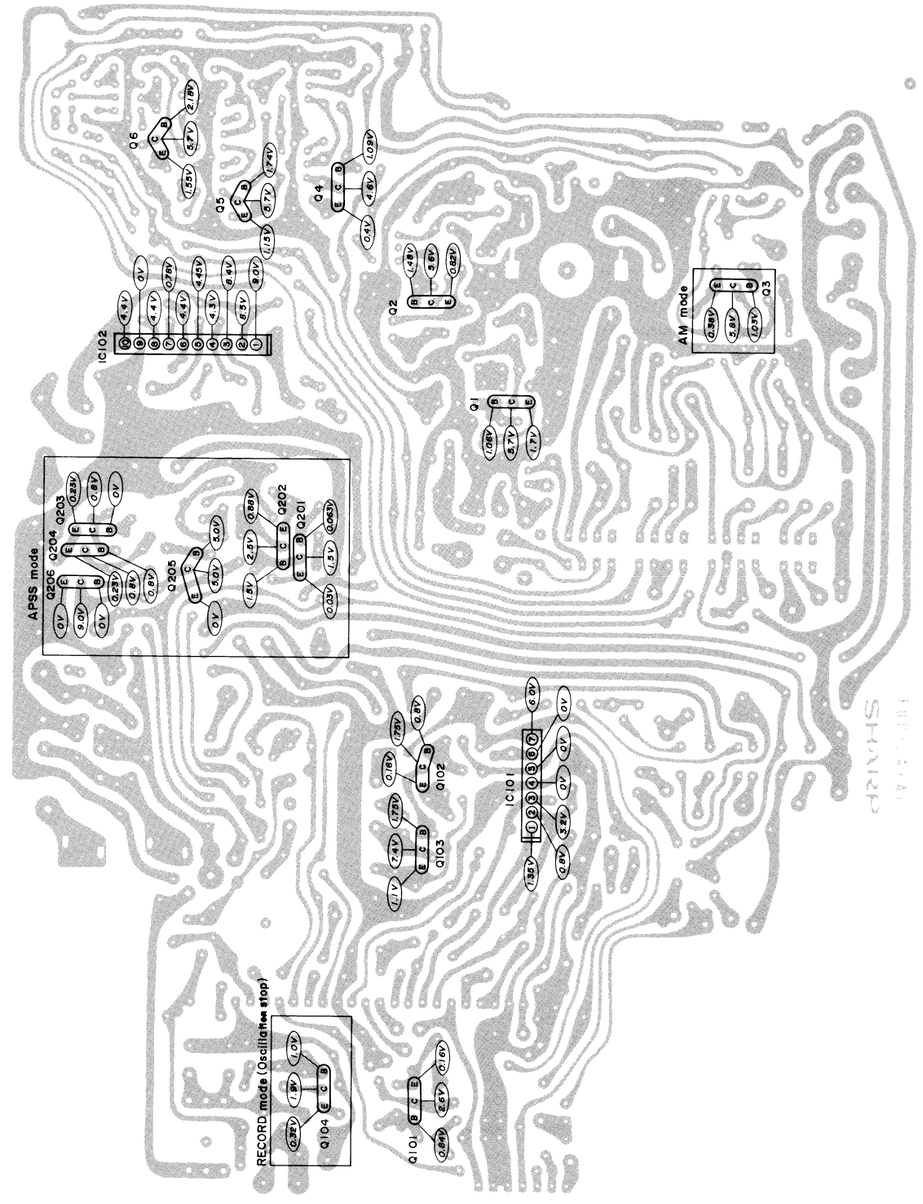
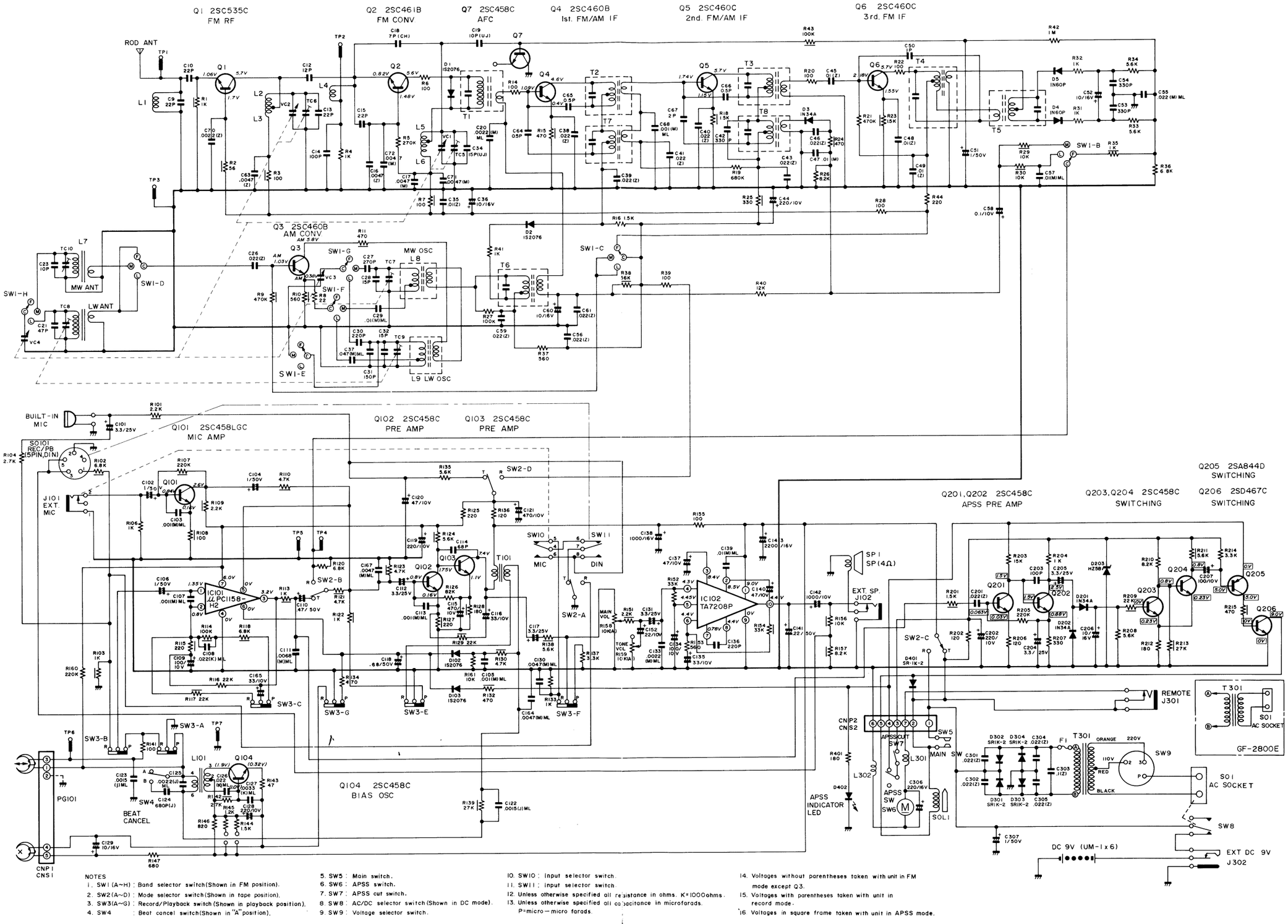


Figure 27 VOLTAGES ON PRINTED WIRING BOARD



NOTES

1. SW1 (A~H) : Band selector switch (Shown in FM position).
2. SW2 (A~D) : Mode selector switch (Shown in tape position).
3. SW3 (A~G) : Record/Playback switch (Shown in playback position).
4. SW4 : Beat cancel switch (Shown in "A" position).
5. SW5 : Main switch.
6. SW6 : APSS switch.
7. SW7 : APSS cut switch.
8. SW8 : AC/DC selector switch (Shown in DC mode).
9. SW9 : Voltage selector switch.
10. SW10 : Input selector switch.
11. SW11 : Input selector switch.
12. Unless otherwise specified all resistance in ohms. K=1000ohms.
13. Unless otherwise specified all capacitance in microfarads. P=micro-micro farads.
14. Voltages without parentheses taken with unit in FM mode except Q3.
15. Voltages with parentheses taken with unit in record mode.
16. Voltages in square frame taken with unit in APSS mode.

(Specifications or wiring diagrams of this model are subject to change for the improvement without prior notice.)

Figure 30 SCHEMATIC DIAGRAM

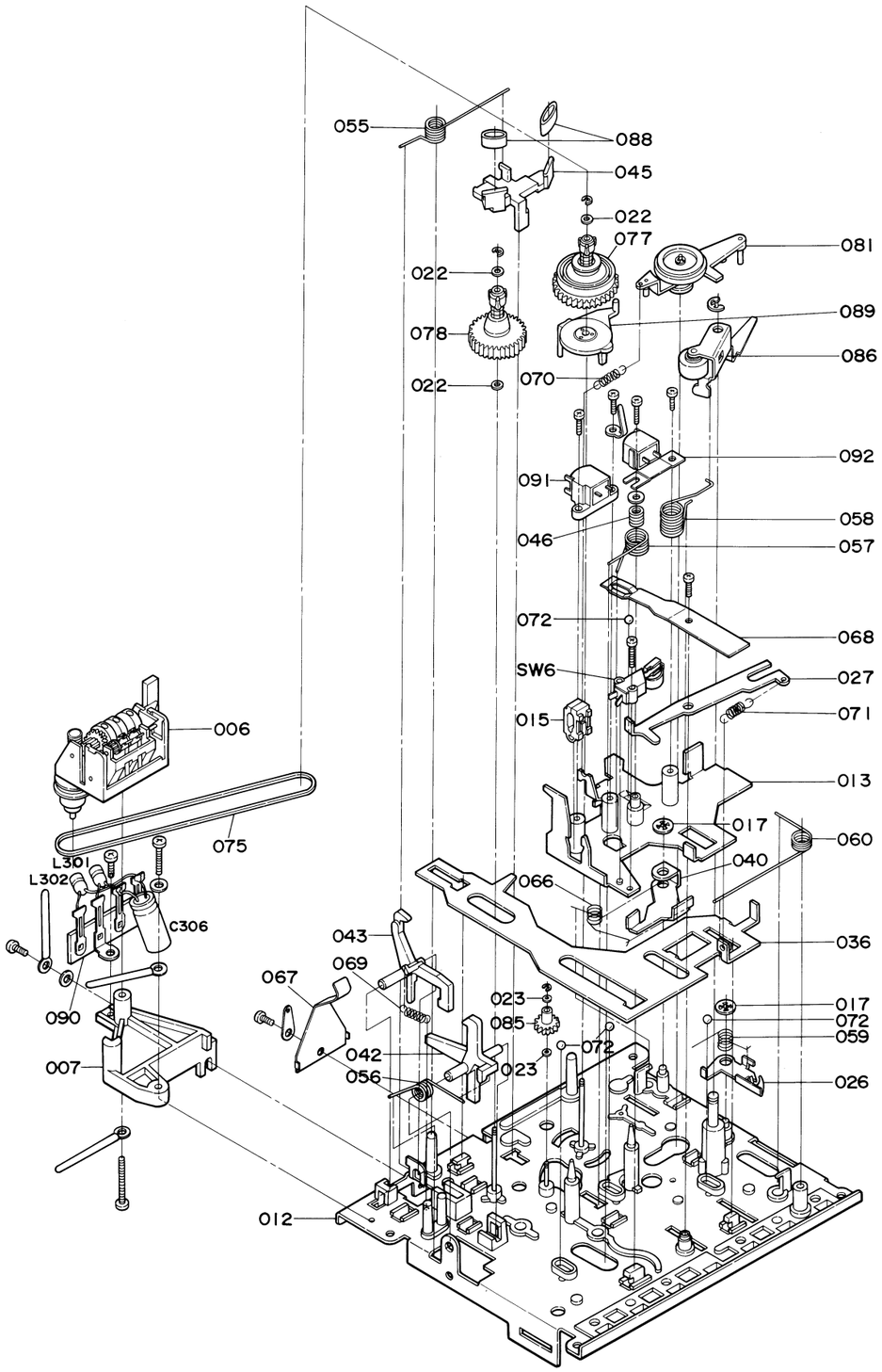


Figure 28 MECHANISM EXPLODED TOP VIEW

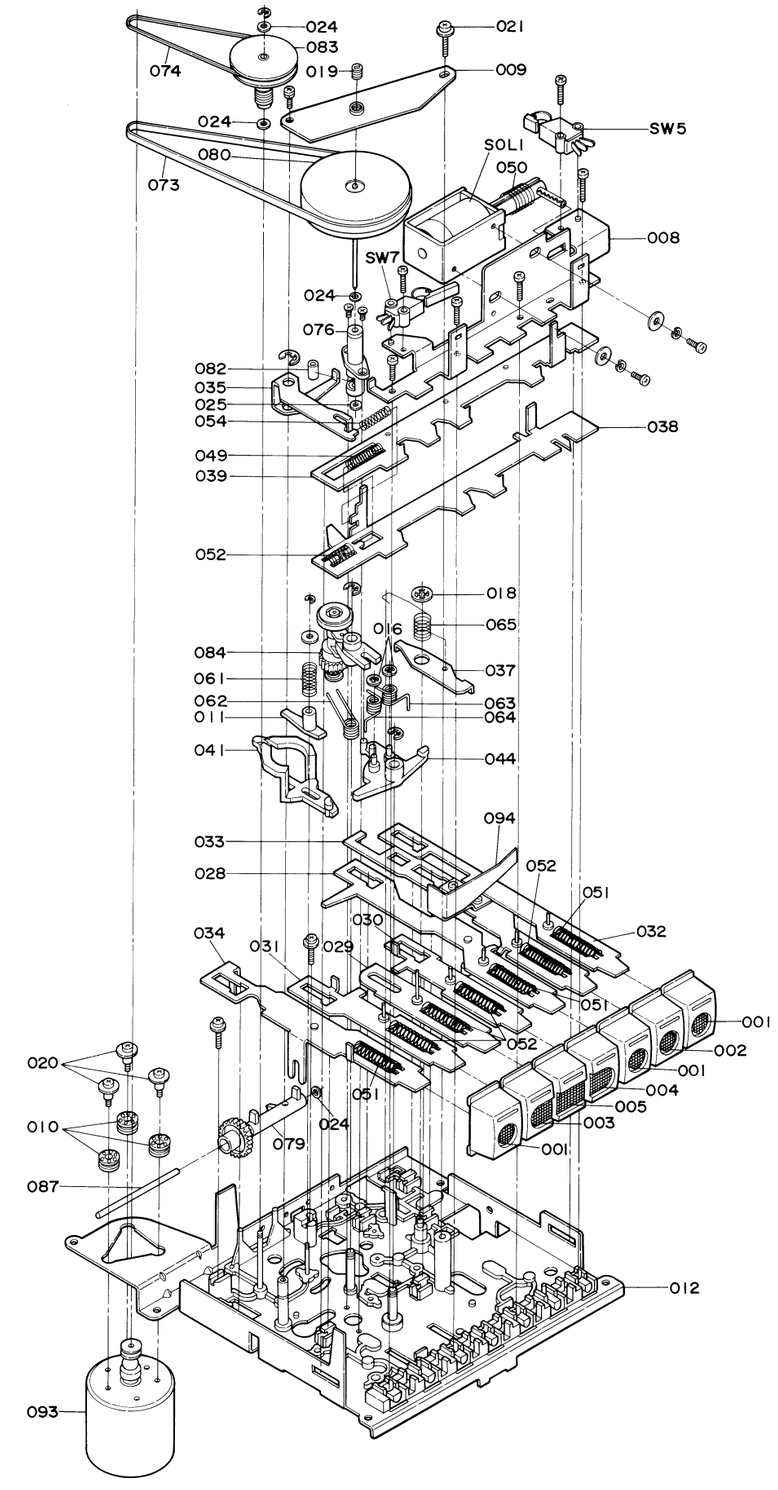


Figure 29 MECHANISM EXPLODED BOTTOM VIEW

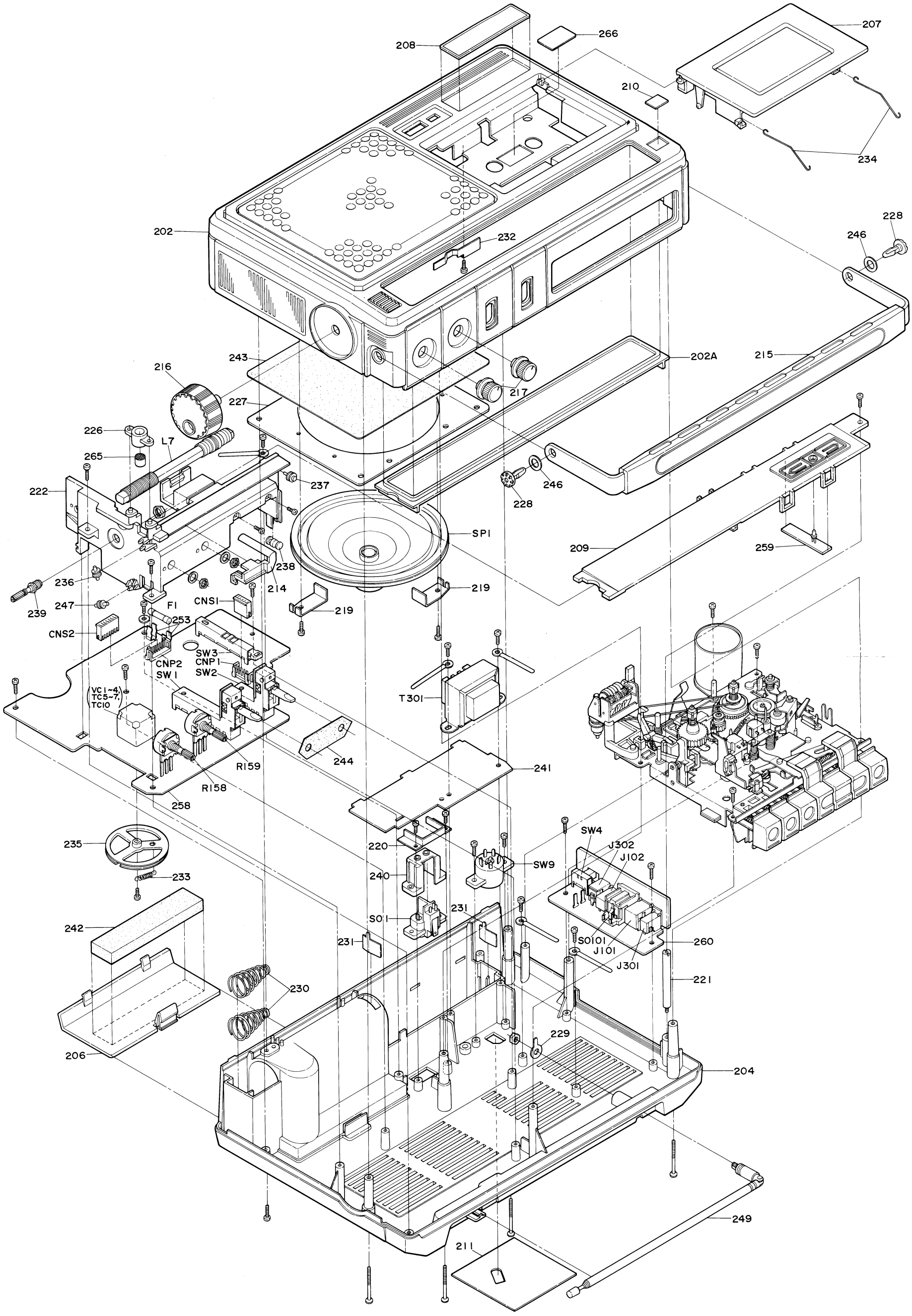


Figure 32 CABINET EXPLODED VIEW

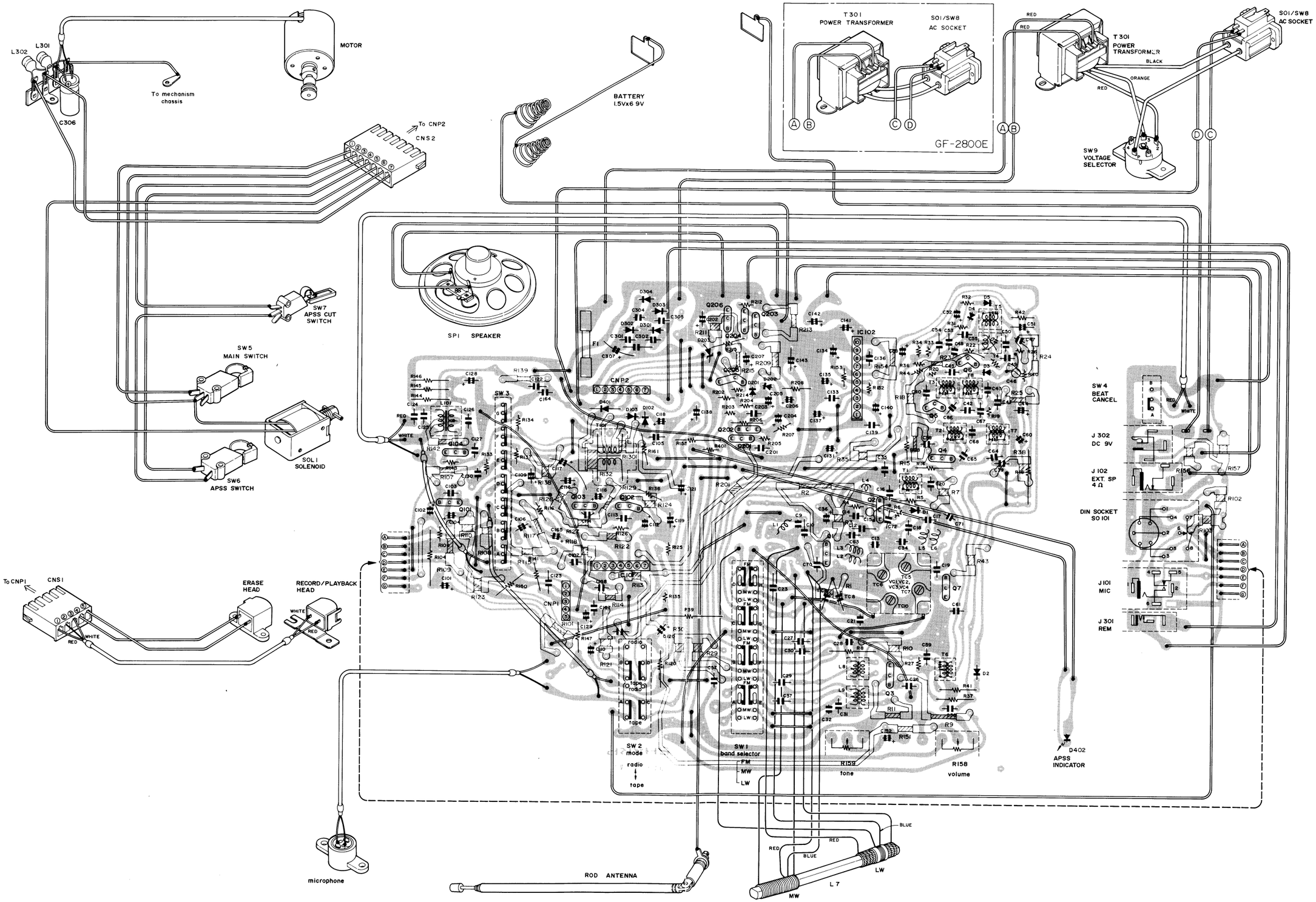


Figure 31 WIRING SIDE OF PRINTED WIRING BOARD

REPLACEMENT PARTS LIST

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

REF. NO.	PART NO.	DESCRIPTION	CODE
		INTEGRATED CIRCUIT	
IC101	VHIUPC1158H-1	Equalizer Amp. (μPC1158H2)	AG
IC102	VHITA7208P/-1	Power Amp. (TA7208P)	AK
		TRANSISTORS	
Q1	VS2SC535-C/-1	FM RF Amplifier (2SC535C)	AD
Q2	VS2SC461-B/-1	FM Converter (2SC461B)	AC
Q3	VS2SC460-B/-1	AM Converter (2SC460B)	AC
Q4	VS2SC460-B/-1	1st. FM/AM IF Amplifier (2SC460B)	AC
Q5	VS2SC460-C/-1	2nd. FM/AM IF Amplifier (2SC460C)	AC
Q6	VS2SC460-C/-1	3rd. FM IF Amplifier (2SC460C)	AC
Q7	VS2SC458-C/-1	AFC (2SC458C)	AC
Q101	VS2SC458LGC-1	Mic Amplifier (2SC458LGC)	AD
Q102	VS2SC458-C/-1	Pre Amplifier (2SC458C)	AC
Q103	VS2SC458-C/-1	Pre Amplifier (2SC458C)	AC
Q104	VS2SC458-C/-1	Bias Oscillator (2SC458C)	AC
Q201	VS2SC458-C/-1	APSS Pre Amplifier (2SC458C)	AC
Q202	VS2SC458-C/-1	APSS Pre Amplifier (2SC458C)	AC
Q203	VS2SC458-C/-1	Switching (Schmitt Trigger) (2SC458C)	AC
Q204	VS2SC458-C/-1	Switching (Schmitt Trigger) (2SC458C)	AC
Q205	VS2SA844-D/-1	Switching (2SA844D)	AD
Q206	VS2SD467-C/-1	Switching (Solenoid Drive) (2SD467C)	AD
		DIODES	
D1	VHD1S2076//-1	FM Overload (1S2076)	AG
D2	VHD1S2076//-1	AM Overload (1S2076)	AG
D3	VHD1N34A///-1	AM Detector (1N34A)	AC
D4	VHD1N60////-3	FM Detector (1N60P) } Matched Pair	AH
D5	VHD1N60////-3	FM Detector (1N60P) } Matched Pair	AH
D102	VHD1S2076//-1	ALC (1S2076)	AG
D103	VHD1S2076//-1	APSS Muting (1S2076)	AG
D201	VHD1N34A///-1	Voltage Doubling Rectifier (1N34A)	AC
D202	VHD1N34A///-1	Voltage Doubling Rectifier (1N34A)	AC
D203	VHEHZ5-B///-1	Voltage Stabilizer, 4.6 ~ 5.1V, (HZ5B)	AD
D301	VHDSR1K-2//-1	Power Rectifier (SR1K-2)	AB
D302	VHDSR1K-2//-1	Power Rectifier (SR1K-2)	AB
D303	VHDSR1K-2//-1	Power Rectifier (SR1K-2)	AB
D304	VHDSR1K-2//-1	Power Rectifier (SR1K-2)	AB
D401	VHDSR1K-2//-1	Protector, Solenoid (SR1K-2)	AB
D402	VHPGL3AR1//-1	APSS Indicator (GL3AR1)	AD
		COILS	
L1	RCILR0108AFZZ	FM Antenna	AA
L2	RCILR0112AFZZ	FM RF	AA
L3	RCILR0112AFZZ	FM RF	AA
L4	RCILC0030AFZZ	FM IF Trap	AC
L5	RCILR0118AFZZ	FM Oscillator	AA
L6	RCILR0118AFZZ	FM Oscillator	AA
L7	RCILA0428AFZZ	MW/LW Bar Antenna	AL
L8	RCILB0292AFZZ	MW Oscillator	AD
L9	RCILB0353AFZZ	LW Oscillator	AD
L101	RCILB0368AFZZ	Bias Oscillator	AE
L301	RCILF0014AGZZ	Choke (Noise)	AC
L302	RCILF0014AGZZ	Choke (Noise)	AC
		TRANSFORMERS	
T1	RCILI0157AFZZ	1st. FM IF	AE
T2	RCILI0157AFZZ	2nd. FM IF	AE
T3	RCILI0157AFZZ	3rd. FM IF	AE
T4	RCILI0183AFZZ	FM Discriminator	AE
T5	RCILI0182AFZZ	FM Discriminator	AE
T6	RCILI0154AFZZ	1st. MW/LW IF	AD
T7	RCILI0179AFZZ	2nd. MW/LW IF	AD
T8	RCILI0170AFZZ	3rd. MW/LW IF	AD
T101	RTRNI0065AFZZ	Recording Step-up	AF
T301	RTRNP0558AFZZ	Power (GF-2800H)	**
T301	RTRNP0562AFZZ	Power (GF-2800E)	**
		CONTROLS	
VC1, VC2, VC3, VC4, TC5, TC6, TC7, TC10	RVC-R0057AFZZ	Variable Capacitor, Tuning with Trimmers TC5: FM Oscillator Trimmer TC6: FM RF Trimmer TC7: MW Oscillator Trimmer TC10: MW Antenna Trimmer	AQ
R158	RVR-A0126AFZZ	Volume Control, 10K (A) ohm	AE
R159	RVR-A0126AFZZ	Tone Control, 10K (A) ohm	AE
TC8, TC9	RTO-H2050AFZZ	LW Antenna Trimmer (TC8) LW Oscillator Trimmer (TC9)	AD

**; Price will be quoted upon receipt of order.

PARTS LIST

CAPACITORS

REF. NO.	PART NO.	DESCRIPTION	CODE
C9	VCCSPU1HL220J	22PF, 50V, ±5%, Ceramic	AA
C10	VCCSPU1HL220J	22PF, 50V, ±5%, Ceramic	AA
C12	VCCSPU1HL120J	12PF, 50V, ±5%, Ceramic	AA
C13	VCCSPU1HL220J	22PF, 50V, ±5%, Ceramic	AA
C14	VCCSPU1HL101J	100PF, 50V, ±5%, Ceramic	AA
C15	VCCSPU1HL220J	22PF, 50V, ±5%, Ceramic	AA
C16	VCKZPU1HF472Z	.0047MFD, 50V, +80–20%, Ceramic	AA
C17	VCKYPU1HB472M	.0047MFD, 50V, ±20%, Ceramic	AA
C18	VCCCPU1HH7R0C	7PF (CH), 50V, ±.25PF, Ceramic	AB
C19	VCCUPU1HJ100J	10PF (UJ), 50V, ±5%, Ceramic	AB
C20	VCQYKU1HM222M	.0022MFD, 50V, ±20%, Mylar	AB
C21	VCCSPU1HL470J	47PF, 50V, ±5%, Ceramic	AA
C23	VCCSPU1HL100C	10PF, 50V, ±.25PF, Ceramic	AA
C26	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C27	VCCSPU1HL271J	270PF, 50V, ±5%, Ceramic	AB
C28	VCCSPU1HL150J	15PF, 50V, ±5%, Ceramic	AA
C29	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar	AB
C30	VCCSPU1HL221J	220PF, 50V, ±5%, Ceramic	AB
C31	VCCSPU1HL151J	150PF, 50V, ±5%, Ceramic	AA
C32	VCCSPU1HL150J	15PF, 50V, ±5%, Ceramic	AA
C34	VCCUPU1HJ150J	15PF (UJ), 50V, ±5%, Ceramic	AB
C35	VCKZPU1HF103Z	.01MFD, 50V, +80–20%, Ceramic	AA
C37	VCQYKU1HM473M	.047MFD, 50V, ±20%, Mylar	AC
C38	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C39	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C40	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C41	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C42	VCCSPU1HL331J	330PF, 50V, ±5%, Ceramic	AB
C43	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C45	VCKZPU1HF103Z	.01MFD, 50V, +80–20%, Ceramic	AA
C46	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C47	VCKYPU1HB103M	.01MFD, 50V, ±20%, Ceramic	AB
C48	VCKZPU1HF103Z	.01MFD, 50V, +80–20%, Ceramic	AA
C49	VCKZPU1HF103Z	.01MFD, 50V, +80–20%, Ceramic	AA
C50	VCCSPU1HL1R0C	1PF, 50V, ±.25PF, Ceramic	AA
C53	VCCSPU1HL331J	330PF, 50V, ±5%, Ceramic	AB
C54	VCCSPU1HL331J	330PF, 50V, ±5%, Ceramic	AB
C55	VCQYKU1HM223M	.022MFD, 50V, ±20%, Mylar	AB
C56	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C57	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar	AB
C59	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C61	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C63	VCKZPU1HF472Z	.0047MFD, 50V, +80–20%, Ceramic	AA
C64	VCCSPU1HLR50C	.5PF, 50V, ±.25PF, Ceramic	AB
C65	VCCSPU1HLR50C	.5PF, 50V, ±.25PF, Ceramic	AB
C66	VCCSPU1HLR50C	.5PF, 50V, ±.25PF, Ceramic	AB
C67	VCCSPU1HL2R0C	2PF, 50V, ±.25PF, Ceramic	AA
C68	VCQYKU1HM102M	.001MFD, 50V, ±20%, Mylar	AB
C70	VCKZPU1HF222Z	.0022MFD, 50V, +80–20%, Ceramic	AA
C71	VCKYPU1HB472M	.0047MFD, 50V, ±20%, Ceramic	AA
C72	VCKYPU1HB472M	.0047MFD, 50V, ±20%, Ceramic	AA
C103	VCQYKU1HM102M	.001MFD, 50V, ±20%, Mylar	AB
C105	VCQYKU1HM102M	.001MFD, 50V, ±20%, Mylar	AB
C107	VCQYKU1HM102M	.001MFD, 50V, ±20%, Mylar	AB
C108	VCQYKU1HM223K	.022MFD, 50V, ±10%, Mylar	AB
C111	VCQYKU1HM682M	.0068MFD, 50V, ±20%, Mylar	AB
C113	VCQYKU1HM102M	.001MFD, 50V, ±20%, Mylar	AB
C114	VCCSPU1HL680J	68PF, 50V, ±5%, Ceramic	AA
C122	VCQYKU1HM152J	.0015MFD, 50V, ±5%, Mylar	AC
C123	VCQYKU1HM152J	.0015MFD, 50V, ±5%, Mylar	AC
C124	VCCSPU1HL681J	680PF, 50V, ±5%, Ceramic	AB
C125	VCQYKU1HM222J	.0022MFD, 50V, ±5%, Mylar	AB
C126	VCQYKU1HM223K	.022MFD, 50V, ±10%, Mylar	AB
C127	VCQYKU1HM332K	.0033MFD, 50V, ±10%, Mylar	AB
C130	VCQYKU1HM472M	.0047MFD, 50V, ±20%, Mylar	AB
C133	VCQYKU1HM222M	.0022MFD, 50V, ±20%, Mylar	AB
C136	VCCSPU1HL221J	220PF, 50V, ±5%, Ceramic	AB
C139	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar	AB
C164	VCQYKU1HM472M	.0047MFD, 50V, ±20%, Mylar	AB
C167	VCQYKU1HM472M	.0047MFD, 50V, ±20%, Mylar	AB
C201	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C203	VCCSPU1HL101J	100PF, 50V, ±5%, Ceramic	AA
C301	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C302	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C303	VCKZPU1HF104Z	.1MFD, 50V, +80–20%, Ceramic	AC
C304	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C305	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA

ELECTROLYTIC CAPACITORS

REF. NO.	PART NO.	DESCRIPTION	CODE
C36	VCEAAU1CW106Y	10MFD, 16V, +50–10%	AB
C44	VCEAAU1AW227Y	220MFD, 10V, +50–10%	AC
C51	VCEAAU1HW105A	1MFD, 50V, +75–10%	AB
C52	VCEAAU1CW106Y	10MFD, 16V, +50–10%	AB
C58	VCAAKU1AA104M	.1MFD, 10V, ±20%, Aluminum	AC
C60	VCEAAU1CW106Y	10MFD, 16V, +50–10%	AB
C101	VCEAAU1EW335A	3.3MFD, 25V, +75–10%	AB
C102	VCEAAU1HW105A	1MFD, 50V, +75–10%	AB
C104	VCEAAU1HW105A	1MFD, 50V, +75–10%	AB
C106	VCEAAU1HW105A	1MFD, 50V, +75–10%	AB
C109	VCEAAU1AW107Y	100MFD, 10V, +50–10%	AB
C110	VCEALU1HW474M	.47MFD, 50V, ±20%	AB
C112	VCEAAU1EW335A	3.3MFD, 25V, +75–10%	AB
C115	RC-EZ1061AFZZ	470MFD, 10V, +50–10%	AC
C116	VCEAAU1AW336Y	33MFD, 10V, +50–10%	AB
C117	VCEAAU1EW335A	3.3MFD, 25V, +75–10%	AB
C118	VCEALU1HW684M	.68MFD, 50V, ±20%	AB
C119	VCEAAU1AW227Y	220MFD, 10V, +50–10%	AC

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
C120	VCEAAU1AW476Y	47MFD, 10V, +50–10%	AB
C121	RC-EZ1061AFZZ	470MFD, 10V, +50–10%	AC
C128	VCEAAU1AW227Y	220MFD, 10V, +50–10%	AC
C129	VCEAAU1CW106Y	10MFD, 16V, +50–10%	AB
C131	VCEAAU1EW335A	3.3MFD, 25V, +75–10%	AB
C134	VCEAAU1AW107Y	100MFD, 10V, +50–10%	AB
C135	VCEAAU1AW336Y	33MFD, 10V, +50–10%	AB
C137	VCEAAU1AW476Y	47MFD, 10V, +50–10%	AB
C138	RC-EZ1070AFZZ	1000MFD, 16V, +50–10%	AD
C140	VCEAAU1AW476Y	47MFD, 10V, +50–10%	AB
C141	VCEALU1HW224M	.22MFD, 50V, ±20%	AB
C142	VCEAAU1AW108Y	1000MFD, 10V, +50–10%	AD
C143	RC-EZ1062AFZZ	2200MFD, 16V, +50–10%	AF
C152	VCAAKU1AA224M	.22MFD, 10V, ±20%, Aluminum	AC
C165	VCEAAU1AW336Y	33MFD, 10V, +50–10%	AB
C202	VCEAAU1AW227Y	220MFD, 10V, +50–10%	AC
C204	VCEAAU1EW335A	3.3MFD, 25V, +75–10%	AB
C205	VCEAAU1EW335A	3.3MFD, 25V, +75–10%	AB
C206	VCEALU1CW106M	10MFD, 16V, ±20%	AB
C207	VCEAAU1AW107Y	100MFD, 10V, +50–10%	AB
C306	VCEAAU1CW227Y	220MFD, 16V, +50–10%	AC
C307	VCEAAU1HW105A	1MFD, 50V, +75–10%	AB

RESISTORS

(All resistors are 1/4W, ±5%, carbon type)

R4	VRD-ST2EY102J	1K ohm	AA
R5	VRD-SU2EY274J	270K ohm	AA
R6	VRD-SU2EY101J	100 ohm	AA
R8	VRD-ST2EE220J	22 ohm	AA
R14	VRD-ST2EY101J	100 ohm	AA
R16	VRD-ST2EY152J	1.5K ohm	AA
R19	VRD-SU2EY684J	680K ohm	AA
R20	VRD-SU2EY101J	100 ohm	AA
R21	VRD-SU2EY474J	470K ohm	AA
R22	VRD-SU2EY101J	100 ohm	AA
R26	VRD-ST2EE822J	8.2K ohm	AA
R27	VRD-SU2EY104J	100K ohm	AA
R28	VRD-SU2EY101J	100 ohm	AA
R31	VRD-SU2EY102J	1K ohm	AA
R32	VRD-SU2EY102J	1K ohm	AA
R33	VRD-SU2EY562J	5.6K ohm	AA
R34	VRD-SU2EY562J	5.6K ohm	AA
R36	VRD-ST2EE682J	6.8K ohm	AA
R37	VRD-ST2EY561J	560 ohm	AA
R39	VRD-ST2EY101J	100 ohm	AA
R40	VRD-SU2EY123J	12K ohm	AA
R41	VRD-ST2EY102J	1K ohm	AA
R42	VRD-SU2EY105J	1Meg ohm	AA
R44	VRD-ST2EY221J	220 ohm	AA
R104	VRD-ST2EE272J	2.7K ohm	AA
R106	VRD-SU2EY102J	1K ohm	AA
R116	VRD-SU2EY223J	22K ohm	AA
R120	VRD-ST2EE682J	6.8K ohm	AA
R125	VRD-SU2EY221J	220 ohm	AA
R126	VRD-SU2EY823J	82K ohm	AA
R133	VRD-SU2EY102J	1K ohm	AA
R134	VRD-SU2EY471J	470 ohm	AA
R135	VRD-SU2EY562J	5.6K ohm	AA
R136	VRD-SU2EY121J	120 ohm	AA
R137	VRD-SU2EY332J	3.3K ohm	AA
R141	VRD-ST2EY101J	100 ohm	AA
R143	VRD-ST2EE470J	47 ohm	AA
R144	VRD-ST2EY152J	1.5K ohm	AA
R145	VRD-ST2EE122J	1.2K ohm	AA
R146	VRD-ST2EE821J	820 ohm	AA
R147	VRD-ST2EE681J	680 ohm	AA
R152	VRD-SU2EY333J	33K ohm	AA
R153	VRD-SU2EY561J	560 ohm	AA
R155	VRD-ST2EY101J	100 ohm	AA
R160	VRD-ST2EE224J	220K ohm	AA
R161	VRD-ST2EE103J	10K ohm	AA
R202	VRD-SU2EY121J	120 ohm	AA
R203	VRD-SU2EY153J	15K ohm	AA
R204	VRD-SU2EY102J	1K ohm	AA
R205	VRD-SU2EY224J	220K ohm	AA
R206	VRD-SU2EY121J	120 ohm	AA
R207	VRD-SU2EY331J	330 ohm	AA
R208	VRD-SU2EY562J	5.6K ohm	AA
R210	VRD-SU2EY822J	8.2K ohm	AA
R212	VRD-SU2EY181J	180 ohm	AA
R214	VRD-SU2EY332J	3.3K ohm	AA
R401	VRD-SU2EY181J	180 ohm	AA

MECHANICAL PARTS

001	JKNBM0263AFSA	Key, Play/Pause/Stop	**
002	JKNBM0263AFSB	Key, Record	**
003	JKNBM0264AFSA	Key, Forward APSS	**
004	JKNBM0265AFSA	Key, Reverse APSS	**
005	JKNBM0266AFSA	Key, APSS Cut	**
006	KCOUB0071AFZZ	Tape Counter	AL
007	LANGF0433AFZZ	Bracket, Tape Counter	**
008	LANGF0434AFFW	Bracket, Solenoid	**
009	LANGF0435AFZZ	Bracket, Flywheel	**
010	LBSHS0001AG00	Cushion, Motor	AA
011	LBSHZ0054AFZZ	Collar, Auto Stop Actuating Lever	**
012	LCHSM0295AFZZ	Mechanism Chassis	—
013	LCHSS0131AFZZ	Sub-chassis	—
015	LHLDW1070AFZZ	Wire Holder	AB
016	LSTWC2001AFZZ	Stop Ring, ϕ2	—
017	LSTWC3002AFZZ	Stop Ring, ϕ3	—
018	LSTWC4004AFZZ	Stop Ring, ϕ4	—
019	LX-BZ0107AGZZ	Screw, Flywheel Thrust Adjust	AB
020	LX-BZ0219AFFD	Screw, Motor	AA
021	LX-HZ0056AFFD	Screw, ϕ3 x 10mm	—
022	LX-WZ5018AGZZ	Washer, ϕ2.1	AA
023	LX-WZ5020AGZZ	Washer, ϕ1.7	AA
024	LX-WZ5037AGZZ	Washer, ϕ2.6	AA
025	LX-WZ9053AFZZ	Washer, Capstan Oil Cut	AA
026	MLEVF0802AFZZ	Lever, Pause Lock	**
027	MLEVF0803AFFW	Lever, Sub-chassis Return	**
028	MLEVF0804AFZZ	Lever, Play	**
029	MLEVF0805AFZZ	Lever, APSS Cut	**
030	MLEVF0806AFZZ	Lever, Rewind/Reverse APSS	**
031	MLEVF0807AFZZ	Lever, Fast Forward/Forward APSS	**
032	MLEVF0808AFZZ	Lever, Stop/Eject	**
033	MLEVF0809AFZZ	Lever, Record	**
034	MLEVF0810AFZZ	Lever, Pause	**
035	MLEVF0811AFFW	Lever, Lock Release	**
036	MLEVF0812AFFW	Lever, APSS	**
037	MLEVF0813AFFW	Lever, Record Safety	**
038	MLEVF0814AFZZ	Lever, Button Lever Lock	**
039	MLEVF0815AFZZ	Lever, APSS Lock	**
040	MLEVF0817AFFW	Lever, Auto Stop Killer	**
041	MLEVP0110AFZZ	Lever, Auto Stop Actuating	**
042	MLEVP0112AFZZ	Lever, Cassette Holder Lock	**

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
043	MLEVP0113AFZZ	Lever, Erase Proof	**
044	MLEVP0114AFZZ	Lever, Fast Forward/Rewind	**
045	MLEVP0115AFZZ	Lever, Brake	**
046	MSPRC0031AGMN	Spring, REC/P.B. Head Azimuth Adjust	AA
049	MSPRC0161AFFJ	Spring, APSS Lock Lever	**
050	MSPRC0162AFFJ	Spring, Plunger	**
051	MSPRC0163AFFJ	Spring, Play Lever, Stop/ Eject Lever, Pause Lever	**
052	MSPRC0164AFFJ	Spring, Button Lever, Lock Lever	**
054	MSPRC0167AFFJ	Spring, Lock Release Lever	**
055	MSPRD0181AFFJ	Spring, Brake Lever	**
056	MSPRD0182AFFJ	Spring, Cassette Holder Lock Lever	**
057	MSPRD0183AFFJ	Spring, Over Stroke Absorbing	**
058	MSPRD0184AFFJ	Spring, Pressure Roller	**
059	MSPRD0185AFFJ	Spring, Pause Lock Lever	**
060	MSPRD0186AFFJ	Spring, APSS Lever	**
061	MSPRD0187AFFJ	Spring, Auto Stop Collar	**
062	MSPRD0188AFFJ	Spring, Fast Forward/ Rewind Roller	**
063	MSPRD0189AFFJ	Spring, Fast Forward/Rewind Lever, Left-hand Side	**
064	MSPRD0190AFFJ	Spring, Fast Forward/Rewind Lever, Right-hand Side	**
065	MSPRD0191AFFJ	Spring, Record Safety Lever	**
066	MSPRD0192AFFJ	Spring, Auto Stop Killer Lever	**
067	MSPRP0186AFFW	Plate Spring, Cassette Retaining	**
068	MSPRP0187AFFJ	Plate Spring, Sub-chassis	**
069	MSPRT0533AFFJ	Spring, Erase Proof Lever	**
070	MSPRT0534AFFJ	Spring, Take-up Idler Lever	**
071	MSPRT0548AFFJ	Spring, Sub-chassis Return Lever	**
072	NBALS0053AFZZ	Steel Ball, ϕ3.5	AA
073	NBLTH0063AFZZ	Belt, Drive	AD
074	NBLTK0125AFZZ	Belt, Auto Stop	AC
075	NBLTK0126AFZZ	Belt, Counter	AC
076	NBRGC0061AFZZ	Bearing, Capstan	AF
077	NDAIR0127AFSA	Turntable, Take-up	AG
078	NDAIR0128AFSA	Turntable, Supply	AE
079	NDRM-0155AFZZ	Worm Wheel, Auto Stop	**
080	NFLYC0069AFZZ	Flywheel	AH
081	NIDR-0061AFZZ	Idler, Take-up	AF
082	NPLYR0050AFZZ	Pulley, Take-up	AB
083	NPLYR0060AFZZ	Pulley, Worm	**
084	NROLW0008AFZZ	Roller, Fast Forward/Rewind	AK
085	NROLX0003AFZZ	Gear, Rewind	AB
086	NROLY0016AFZZ	Pressure Roller Assembly	AE
087	NSFTN0004AFFW	Shaft, Worm Wheel	**
088	PCUSG0026AG00	Rubber, Brake Lever	AB
089	PGIDM0064AFZZ	Guide, Auto Stop Actuating Lever	**
090	QLUGL0302SEZZ	Lug, Terminal	AA
091	RHEDA0062AFZZ	Head, Erase	**
092	RHEDG0054AFZZ	Head, Record/Playback	**
093	RMOTM0079AFZZ	Motor with Pulley	**
094	MSPRP0193AFFJ	Plate Spring, REC/P.B. Switch	**

MISCELLANEOUS

REF. NO.	PART NO.	DESCRIPTION	CODE
202	GCAB-1008AFSA	Cabinet, Front (GF-2800H)	**
	GCAB-1010AFSA	Cabinet, Front (GF-2800E)	**
202A	HPNLD1173AFSA	Window, Dial Scale (Part of 202)	**
204	GCABB1477AFSA	Cabinet, Back	**
206	GFTAB1109AFSA	Lid, Battery Compartment	**
207	GFTAC1082AFSA	Holder, Cassette	**
208	HBDGD1003AFSA	Badge, GF-2800	**
209	HDALP0393AFSA	Dial Scale	**
210	HINDM1092AFSB	Indication Metal, SHARP	AA
211	HINDM1234AFSA	Indication Metal, Model Spec. (GF-2800H)	**
	HINDM1237AFSA	Indication Metal, Model Spec. (GF-2800E)	AC
214	HSSND0244AFSA	Pointer, Dial	**
215	JHNDG1060AFSA	Handle	**
216	JKNBN0324AFSA	Knob, Tuning Control	AC
217	JKNBN0335AFSB	Knob, Volume/Tone Control	AE
219	LANGS0059AFFW	Bracket, Speaker	**
220	LANGT0704AFFW	Bracket, Mains Supply Socket	**
221	LBOSB0102AFFW	Boss, Back Cabinet	**
222	LHLDF1209AFZZ	Frame, Switches and Controls	**
226	LHLDZ8055AFZZ	Holder, Built-in Microphone	AB
227	LPLTK0050AF00	Plate, Speaker	**
228	LX-LZ0062AFSA	Snap, Handle Retaining	—
229	LX-WZ0018AFFW	Washer, Rod Antenna	AA
230	MSPRC0105AFFN	Battery Spring, Negative Side	AB
231	MSPRP0110AFFN	Battery Spring, Positive Side	AB
232	MSPRP0188AFFW	Plate Spring, Cassette Holder Opening	**
233	MSPRT0010AFFJ	Spring, Dial Cord	AA
234	MSPRZ0054AFFJ	Spring, Cassette Holder	AA
235	NDRM-0002AFZZ	Drum, Dial Cord	AC
236	NPLYB0050AFZZ	Pulley, Dial Cord	AA
237	NPLYB0051AFZZ	Pulley, Dial Cord	AA
238	NPLYC0104AFFW	Pulley, Dial Cord	**
239	NSFTD0046AFFW	Shaft, Dial Cord	AD
240	PCOVW1103AFZZ	Cover, Mains Supply Socket	**
241	PCOVZ7051AF00	Fiber, Battery Compartment	AC
242	PCUSU0092AG00	Cushion, Battery Lid	AA
243	PFLT-0343AF00	Felt, Speaker	AB
244	PFLT-0344AF00	Felt, Mode Selector/Band Selector Switch	AA
246	LX-WZ1055AFZZ	Washer, Handle Retaining	**
247	NPLYC0105AFFW	Pulley, Dial Cord	**
249	QANTR0110AFZZ	Rod Antenna	**
253	QFSHD1001AGZZ	Holder, Fuse	AB
258	QPRBF0082AFA1	P.W. Board, Audio/Tuner Amp., (Board only, Not Available)	—
259	QPRBF0082AFA2	P.W. Board, APSS Indicator, (Board only, Not Available)	—
260	QPRBF0082AFA3	P.W. Board, Jack, (Board only, Not Available)	—
265	RMICC0071AFZZ	Built-in Microphone	**
266	TLABZ0105AFZZ	Label, Cassette Compartment	—
	SPAKA0518AFZZ	Cushion, Packing, Right-hand Side	**
	SPAKA0522AFZZ	Cushion, Packing, Left-hand Side	**
	SPAKC1156AFZZ	Individual Carton (GF-2800H)	**
	SPAKC1168AFZZ	Individual Carton (GF-2800E)	**
	SSAKH0053AFZZ	Polyethylene Bag	AA
	TINSZ0121AFZZ	Operation Manual (GF-2800H)	**

PARTS

REF. NO.	PART NO.	DESCRIPTION	CODE
	TINSE0567AFZZ	Operation Manual (GF-2800E)	**
	TTAGH0043AFZZ	Tag (GF-2800H only)	**
	RPHOE0007AGZZ	Earphone	AD
	QACCK0050AFZZ	Cord, Mains Supply (GF-2800H)	AM
	QACCB0003AG0V	Cord, Mains Supply (GF-2800E)	AL
	QPLGZ0152AFZZ	Plug, Erasing	AB
F1	QFS-C501CAGNI	Fuse, 500mAT	AE
J101, J102, J301, J302	QJAKH0069AF00	Jack Plate Assembly J101: External Microphone Jack J102: External Speaker Jack J301: Remote Control Jack J303: External DC Jack	**
SW1	QSW-B0098AFZZ	Switch, Band Selector	AM
SW2	QSW-B0099AFZZ	Switch, Mode Selector	AK
SW3	QSW-S0165AFZZ	Switch, Record/Playback	AF
SW4	QSW-S0191AFZZ	Switch, Beat Cancel	AE
SW5	QSW-F0049AGZZ	Switch, Main	AF

REF. NO.	
SW6	
SW7	C
SW8	No
SW9	QSO
SW10	Not Ava
SW11	Not Availa
SO1	QSOCA0253
SO101	QSOCD2556AF
SP1	VSP0010P-284A
CNP1	QCNCM174EAF
CNP2	QCNCM176GAF
CNS1	QCNW-0318AFZ
CNS2	QCNW-0327AFZZ
SOL1	RPLU-0075AFZZ